

U. S. DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

**Merged bibliography of the quadrennial Seismology
Report (1983–1986) to the
International Union of Geodesy and Geophysics**

by

Carol K. Sullivan

OPEN-FILE REPORT 87-516

**This report is preliminary and has not been reviewed for conformity with
U.S. Geological Survey editorial standards and stratigraphic nomenclature.**

1987

FOREWARD

This document consists of the merged bibliographies of the ten contributions to the quadrennial Seismology Report (1983–1986) to the IUGG (International Union of Geodesy and Geophysics), which have been published in *Reviews of Geophysics* in July, 1987 (v. 25, p. 1131–1214). The principal purpose of the Seismology Report is to review the scientific achievements in U.S. Seismology for the four years of 1983 through the end of 1986 and to compile references culled mainly from the American literature for the same period. The 2,017 different references listed in these ten contributions are arranged here alphabetically by the first author's last name.

Thomas C. Hanks
Associate Editor
August, 1987

- Abers, G., The subsurface structure of Long Valley caldera, Mono County, California: a preliminary synthesis of gravity, seismic, and drilling information, *J. Geophys. Res.*, 90, 3627-3636, 1985.
- Abrahamson, N. A., Estimation of seismic wave coherency and rupture velocity using the SMART 1 strong-motion array recordings, *Rep. UCB/EERC-85/02*, 134 pp., Earthquake Engin. Res. Cen., Univ. of Calif., Berkeley, CA, 1985.
- Abrahamson, N. A., and B. A. Bolt, The spatial variation of the phasing of seismic strong ground motion, *Bull. Seismol. Soc. Am.*, 75, 1247-1264, 1985.
- Abrahamson, N. A., and R. B. Darragh, Observation of a double event at regional distances: the Morgan Hill earthquake of 24 April 1984, *Bull. Seismol. Soc. Am.*, 75, 1461-1464, 1985.
- Abrahamson, N. A., and R. B. Darragh, The Morgan Hill earthquake of April 24, 1984—the 1.29 g acceleration at Coyote Lake dam: due to directivity, a double event, or both?, *Earthquake Spectra*, 1, 445-455, 1985.
- Acharya, H., Comment on "Seismic potential associated with subduction in the northwest United States" by T. H. Heaton and H. Kanamori, *Bull. Seismol. Soc. Am.*, 75, 889-890, 1985.
- Achauer, U., L. Greene, J. R. Evans, and H. M. Iyer, Nature of the magma chamber underlying the Mono craters area, eastern California, as determined from teleseismic traveltimes residuals, *J. Geophys. Res.*, 91, 13873-13891, 1986.
- Achenbach, J. D., and M.-K. Kuo, Effect of transverse anisotropy on strong ground motion due to strike slip faulting, in *Earthquake Source Mechanics, Maurice Ewing Ser.*, vol. 6, edited by S. Das et al., pp. 111-120, AGU, Washington, DC, 1986.
- Ackermann, H. D., Seismic-refraction study in the area of the Charleston, South Carolina, 1886 earthquake, in *Studies Related to the Charleston, South Carolina Earthquake of 1886—Tectonics and Seismicity*, edited by G. S. Gohn, pp. F1-F20, U.S. Geol. Surv. Prof. Pap. 1313, 1983.
- Adair, R. G., Comments on the absolute levels of very-low frequency acoustic noise predicted by Wilson's modification of Isakovich and Kur'yanov's theory, *J. Acoust. Soc. Am.*, in press, 1986.
- Adair, R. G., Microseisms in the deep ocean: observations and theory, Ph.D. thesis, 166 pp., Univ. of California, San Diego, CA, 1986.
- Adair, R. G., J. A. Orcutt, and T. H. Jordan, Analysis of ambient seismic noise recorded downhole and ocean-bottom seismometers on Deep Sea Drilling Project Leg 78B, *Initial Reports of the Deep Sea Drilling Project*, 78, 767-781, 1984.
- Adair, R. G., J. A. Orcutt, and T. H. Jordan, Description and performance of the Marine Seismic System during the Ngendei experiment, *Initial Reports of the Deep Sea Drilling Project*, 88/91, in press, 1986.
- Adair, R. G., J. A. Orcutt, and T. H. Jordan, Low frequency ocean-bottom noise observations in the deep sea, *J. Acoust. Soc. Am.*, 80, 633-645, 1986.
- Adair, R. G., J. A. Orcutt, and T. H. Jordan, Preliminary analysis of ocean-bottom and sub-bottom microseismic ambient noise during the Ngendei experiment, *Initial Reports of the Deep Sea Drilling Project*, 88/91, in press, 1986.
- Adams, J., Active deformation of the Pacific northwest continental margin, *Tectonics*, 3, 449-472, 1984.
- Adams, R. D., and M. Barazangi, Seismotectonics and seismology in the Arab region: a brief summary and future plans, *Bull. Seismol. Soc. Am.*, 74, 1011-1030, 1984.
- Adeli, H., The Sirch (Kerman, Iran) earthquake of 28 July 1981—a field investigation, *Bull. Seismol. Soc. Am.*, 72, 841-862, 1982.
- Agnew, D., J. Berger, R. Buland, W. Farrell, and J. F. Gilbert, Project IDA—a decade in review, *Eos (Trans. Amer. Geophys. Un.)*, 67, 203-212, 1986.
- Aki, K., Analysis of the seismic coda of local earthquakes as scattered waves, *J. Geophys. Res.*, 74, 615-631, 1969.
- Aki, K., Asperities, barriers, characteristic earthquakes and strong ground motion, *J. Geophys. Res.*, 89, 5867-5872, 1984.
- Aki, K., Evidence for magma intrusion during the Mammoth Lakes earthquakes of May 1980 and implications of the absence of volcanic (harmonic) tremor, *J. Geophys. Res.*, 89, 7689-7696, 1984.
- Aki, K., Prediction of strong motion using physical models of earthquake faulting, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 433-440, San Francisco, CA, 1984.
- Aki, K., An overview and issues: review of simulation procedures, in *Strong Ground Motion Simulation and Earthquake Engineering Applications*, Publ. 85-02, edited by R. E. Scholl and J. L. King, pp. 11-1-11-9, Earthquake Engin. Res. Inst., El Cerrito, CA, 1985.

2 IUGG BIBLIOGRAPHY

- Aki, K., Attenuation and site effects at high frequency, in *Strong Ground Motion Simulation and Earthquake Engineering Applications*, Publ. 85-02, edited by R. E. Scholl and J. L. King, pp. 23-1-23-9, Earthquake Engin. Res. Inst., El Cerrito, CA, 1985.
- Aki, K., Theory of earthquake prediction with special reference to monitoring of the quality factor of lithosphere by the coda method, *Earthq. Pred. Res.*, 3, 219-230, 1985.
- Aki, K., and B. Chouet, Origin of coda waves: source, attenuation, and scattering effects, *J. Geophys. Res.*, 80, 3322-3347, 1975.
- Aldrich, M. L., B. A. Bolt, A. E. Leviton, and P. U. Rodda, The "report" of the 1868 Hayward earthquake, *Bull. Seismol. Soc. Am.*, 76, 71-76, 1986.
- Alewine, R. W., Seismic sensing of Soviet tests, *Defense/85*, pp. 11-21, U.S. Dept. of Defense, Washington, DC, 1985.
- Algermissen, S. T., E. Kausel, C. Mueller, and R. Borcherdt, Preliminary analysis of ground response and observed intensity, in *Preliminary Report of Investigations of the Central Chile Earthquake of March 3, 1985*, edited by S. T. Algermissen, pp. 117-124, U.S. Geol. Surv. Open-File Rep. 85-542, 1985.
- Allen, C. R., Earthquake prediction—1982 overview, *Bull. Seismol. Soc. Am.*, 72, S331-S335, 1982.
- Allen, C. R., Seismological and paleoseismological techniques of research in active tectonics, in *Active Tectonics, Studies in Geophysics*, pp. 148-154, National Academy Press, Washington, DC, 1986.
- Allen, C. R., A. R. Gillespie, H. Yuan, K. E. Sieh, Z. Buchun, and Z. Chengnan, Red River and associated faults, Yunnan province, China: Quaternary geology, slip rates, and seismic hazard, *Geol. Soc. Am. Bull.*, 95, 686-700, 1984.
- Allenby, R. J., and C. C. Schnetzler, United States crustal thickness, *Tectonophysics*, 93, 13-31, 1983.
- Allmendinger, R. W., J. W. Sharp, D. Von Tish, L. Serpa, L. Brown, S. Kaufman, and J. Oliver, Cenozoic and Mesozoic structure of the eastern Basin and Range province, Utah, from COCORP seismic-reflection data, *Geology*, 11, 532-536, 1983.
- Allmendinger, R. W., H. Farmer, E. Hauser, J. Sharp, D. Von Tish, J. Oliver, and S. Kaufman, Phanerozoic tectonics of the Basin and Range—Colorado plateau transition from COCORP data and geologic data: a review, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 257-267, AGU Geodynamics Series, Washington, DC, 1986.
- Ambos, E., and D. M. Hussong, Oceanographer transform fault structure compared to that of surrounding oceanic crust: results from seismic refraction data analysis, *J. Geodyn.*, 5, 79-102, 1985.
- Ambos, E. L., and D. M. Hussong, Structure at the toe of the subduction complex: Middle America trench offshore Guatemala, *Initial Reports of the Deep Sea Drilling Project*, 84, 61-87, 1985.
- Ambos, E. L., D. M. Hussong, and C. E. Holman, An ocean bottom seismometer study of shallow seismicity near the Mid-America trench offshore Guatemala, *J. Geophys. Res.*, 90, 11397-11412, 1985.
- Amini, A., and M. Trifunac, Analysis of a feedback transducer, *Rep. 83-03*, 58 pp., Dept. Civil Engin., Univ. So. Calif., Los Angeles, CA, 1983.
- Amini, A., and M. Trifunac, Analysis of a force balance accelerometer, *Soil Dynamics and Earthquake Engin.*, 4, 82-90, 1985.
- Anagnos, T., and A. S. Kiremidjian, Stochastic time-predictable model for earthquake occurrences, *Bull. Seismol. Soc. Am.*, 74, 2593-2611, 1984.
- Anderson, D. L., A new look at the inner core of the earth, *Nature*, 302, 660, 1983.
- Anderson, D. L., Surface wave tomography, *Eos (Trans. Amer. Geophys. Un.)*, 65, 147-148, 1984.
- Anderson, D. L., Evolution of earth structure and future directions of 3D modeling, in *The VELA Program*, edited by A. Kerr, pp. 399-418, 1985.
- Anderson, D. L., The mineralogy of deep slabs, *Eos (Trans. Amer. Geophys. Un.)*, 67, 379, 1986.
- Anderson, D. L., and J. D. Bass, Mineralogy and composition of the upper mantle, *Geophys. Res. Lett.*, 11, 637-640, 1984.
- Anderson, D. L., and A. M. Dziewonski, Upper mantle anisotropy: evidence from free oscillations, *Geophys. J. R. Astron. Soc.*, 69, 383-404, 1982.
- Anderson, D. L., and A. M. Dziewonski, Seismic tomography, *Scientific American*, 251, 60-68, 1984.
- Anderson, D. L., and J. Regan, Upper mantle anisotropy and the oceanic lithosphere, *Geophys. Res. Lett.*, 10, 841-844, 1983.
- Anderson, J. G., Digital recordings of strong motion in Mexicali Valley, in *Guerrero*, and

- during aftershock sequences in Mexico, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 167-174, San Francisco, CA, 1984.
- Anderson, J. G., The 4 September 1981 Santa Barbara Island, California, earthquake: interpretation of strong motion data, *Bull. Seismol. Soc. Am.*, **74**, 995-1010, 1984.
- Anderson, J. G., Two observations about low-frequency signals on accelerograms from the October 15, 1979 Imperial Valley, California earthquake, *Earthquake Engin. and Structural Dynamics*, **13**, 97-108, 1985.
- Anderson, J. G., Implications of attenuation for studies of the earthquake source, in *Earthquake Source Mechanics, Maurice Ewing Ser.*, vol. 6, edited by S. Das et al., pp. 311-318, AGU, Washington, DC, 1986.
- Anderson, J. G., Seismic strain rates in the central and eastern United States, *Bull. Seismol. Soc. Am.*, **76**, 273-290, 1986.
- Anderson, J. G., and S. E. Hough, A model for the shape of the Fourier amplitude spectrum of acceleration at high frequencies, *Bull. Seismol. Soc. Am.*, **74**, 1969-1993, 1984.
- Anderson, J. G., and S. E. Hough, The shape of the Fourier amplitude spectrum of acceleration at high frequencies, in *Strong Ground Motion Simulation and Earthquake Engineering Applications, Publ. 85-02*, edited by R. E. Scholl and J. L. King, pp. 29-1-29-17, Earthquake Engin. Res. Inst., El Cerrito, CA, 1985.
- Anderson, J. G., and J. E. Luco, Consequences of slip rate constraints of earthquake occurrence relations, *Bull. Seismol. Soc. Am.*, **73**, 471-496, 1983.
- Anderson, J. G., and J. E. Luco, Parametric study of near-field ground motion for a strike-slip dislocation model, *Bull. Seismol. Soc. Am.*, **73**, 23-43, 1983.
- Anderson, J. G., and J. E. Luco, Parametric study of near-field ground motions for oblique-slip and dip-slip dislocation models, *Bull. Seismol. Soc. Am.*, **73**, 45-57, 1983.
- Anderson, J. G., and P. G. Silver, Accelerogram evidence for southward rupture propagation on the Imperial fault during the October 15, 1979 earthquake, *Geophys. Res. Lett.*, **12**, 349-352, 1985.
- Anderson, J. G., J. N. Brune, J. Prince, and F. L. Vernon, III, Preliminary report on the use of digital strong motion recorders in the Mexicali Valley, Baja California, *Bull. Seismol. Soc. Am.*, **73**, 1451-1467, 1983.
- Anderson, J. G., P. Bodin, J. N. Brune, J. Prince, S. K. Singh, R. Quaas, and M. Onate, Strong ground motion from the Michoacan, Mexico, earthquake, *Science*, **233**, 1043-1049, 1986.
- Anderson, L. W., and F. F. Hawkins, Recurrent Holocene strike-slip faulting, Pyramid Lake fault zone, western Nevada, *Geology*, **12**, 681-684, 1984.
- Anderson, P. N., F. K. Duennbier, and R. K. Cessaro, Horizontal seismic sensor orientation, in an ocean borehole, determined from explosive charges, *J. Geophys. Res.*, *in press*, 1986.
- Anderson, R. N., J. Honnorez, K. Becker, A. C. Adamson, J. C. Alt, R. Emmermann, P. D. Kepton, H. Kinoshita, C. Laverne, M. J. Mottle, and R. L. Newmark, DSDP Hole 504B, The first reference section over 1 km through layer 2 of the oceanic crust, *Nature*, **300**, 589-594, 1982.
- Anderson, T. H., R. J. Erdlac, Jr., and M. A. Sandstrom, Late-Cretaceous allochthons and post-Cretaceous strike-slip displacement along the Cuilco-Chixoy-Polochic fault, Guatemala, *Tectonics*, **4**, 453-476, 1985.
- Anderson-Fontana, S., J. F. Engeln, P. Lundgren, R. L. Larson, and S. Stein, Tectonics and evolution of the Juan Fernandez microplate at the Pacific-Nazca-Antarctic triple junction, *J. Geophys. Res.*, **91**, 2005-2018, 1986.
- Ando, C. J., B. L. Czuchra, S. L. Klemperer, L. D. Brown, M. J. Cheadle, F. A. Cook, J. E. Oliver, S. Kaufman, T. Walsh, J. B. Thompson, Jr., J. B. Lyons, and J. L. Rosenfeld, Crustal profile of mountain belt: COCORP deep seismic reflection profiling in New England Appalachians and implications for architecture of convergent mountain chains, *Bull. Am. Assn. Petrol. Geologists*, **68**, 819-837, 1984.
- Ando, M., Y. Ishikawa, and F. Yamazaki, Shear wave polarization anisotropy in the upper mantle beneath Honshu, Japan, *J. Geophys. Res.*, **88**, 5850-5864, 1984.
- Andrews, D. J., Dynamic plane-strain shear rupture with a slip-weakening friction law calculated by a boundary integral method, *Bull. Seismol. Soc. Am.*, **75**, 1-21, 1985.
- Andrews, D. J., Objective determination of source parameters and similarity of earthquakes of different size, in *Earthquake Source Mechanics, Maurice Ewing Ser.*, voi. 6, edited by S. Das et al., pp. 259-267, AGU, Washington, DC, 1986.
- Andrews, D. J., and T. C. Hanks, Scarp degraded by linear diffusion: inverse solution for age, *J. Geophys. Res.*, **90**, 10193-10208, 1985.

4 IUGG BIBLIOGRAPHY

- Andrews, M. C., W. D. Mooney, and R. P. Meyer, The relocation of microearthquakes in the northern Mississippi embayment, *J. Geophys. Res.*, **90**, 10223-10236, 1985.
- Andrews, R., Earthquake prediction and public policy: recent experiences in California, *Earthq. Pred. Res.*, **3**, 675-680, 1985.
- Ankeny, L. A., L. W. Braile, and K. H. Olsen, Upper crustal structure beneath the Jemez Mountains volcanic field, New Mexico, determined by three-dimensional simultaneous inversion of seismic refraction and earthquake data, *J. Geophys. Res.*, **91**, 6188-6198, 1986.
- Apsel, R. J., and J. E. Luco, On the Green's functions for a layered half-space. Part II, *Bull. Seismol. Soc. Am.*, **73**, 931-951, 1983.
- Arabasz, W. J., and D. R. Julander, Geometry of seismically active faults and crustal deformation within the Basin and Range-Colorado plateau transition in Utah, in *Extensional Tectonics of the Southwestern United States: A Perspective on Processes and Kinematics*, edited by L. Mayer, pp. 43-74, *Geol. Soc. Am. Special Paper* **208**, 1986.
- Araya, R., and A. Der Kiureghian, Seismic hazard analysis including source directivity effect, in *Proc. of 3rd U.S. Nat. Conf. on Earthquake Engin.*, vol. 1, pp. 269-280, Charleston, SC, 1986.
- Archambeau, C. B., Verifying a test ban: a new approach to monitoring underground nuclear tests, *Issues in Sci. and Technol.*, pp. 18-19, winter 1986.
- Archuleta, R. J., A faulting model for the 1979 Imperial Valley earthquake, *J. Geophys. Res.*, **89**, 4559-4585, 1984.
- Archuleta, R. J., Downhole recordings of seismic radiation, in *Earthquake Source Mechanics, Maurice Ewing Ser.*, vol. 6, edited by S. Das et al., pp. 319-329, AGU, Washington, DC, 1986.
- Archuleta, R. J., J. Watson, J. B. Fletcher, and E. Semenza, Source parameters for two aftershocks of the Morgan Hill earthquake, in *The Morgan Hill, California Earthquake of April 24, 1984 (A Preliminary Report)*, vol. 1, pp. 27-49, *U.S. Geol. Surv. Open-File Rep. 84-498A*, 1984.
- Ascher, U., and P. Spudich, A hybrid collocation method for calculating complete theoretical seismograms in vertically varying media, *Geophys. J. R. Astron. Soc.*, **86**, 19-40, 1986.
- Asfaw, L. M., Development of earthquake-induced fissures in the main Ethiopian rift, *Nature*, **297**, 393-395, 1985.
- Astiz, L., and C. R. Allen, Seismicity of the Garlock fault, California, *Bull. Seismol. Soc. Am.*, **73**, 1721-1734, 1983.
- Astiz, L., and H. Kanamori, An earthquake doublet in Ometepec, Guerrero, Mexico, *Phys. Earth Planet. Inter.*, **34**, 24-45, 1984.
- Astiz, L., and H. Kanamori, Interplate coupling and temporal variation of mechanisms of intermediate-depth earthquakes in Chile, *Bull. Seismol. Soc. Am.*, **76**, 1614-1622, 1986.
- Atkinson, G. M., Attenuation of strong ground motion in Canada from a random vibrations approach, *Bull. Seismol. Soc. Am.*, **74**, 2629-2653, 1984.
- Aubeny, C. P., J. L. Von Thun, and N. Y. Chang, Response characteristics of soil deposits, in *Proc. of 3rd U.S. Nat. Conf. on Earthquake Engin.*, vol. 1, pp. 405-416, Charleston, SC, 1986.
- Aydin, A., and B. M. Page, Diverse Pliocene-Quaternary tectonics in a transform environment, San Francisco bay region, California, *Geol. Soc. Am. Bull.*, **95**, 1303-1317, 1984.
- Baag, C.-E., and C. A. Langston, A WKBJ spectral method for computation of SV synthetic seismograms in a cylindrically symmetric medium, *Geophys. J. R. Astron. Soc.*, **80**, 387-417, 1985.
- Baag, C.-E., and C. A. Langston, Shear-coupled PL, *Geophys. J. R. Astron. Soc.*, **80**, 363-385, 1985.
- Baag, C.-E., and C. A. Langston, Diffracted Sp generated under the Australian shield, *J. Geophys. Res.*, **91**, 9507-9516, 1986.
- Bache, T. C., Estimating the yield of underground nuclear explosions, *Bull. Seismol. Soc. Am.*, **72**, S131-S168, 1982.
- Bache, T. C., The effect of Q on teleseismic P waves, in *The VELA Program*, edited by A. Kerr, pp. 252-272, 1985.
- Bache, T. C., and R. W. Alewine, Monitoring a comprehensive test ban treaty, Unpub. ms. presented before the American Geophysical Union, *Special Session on Verification of Nuclear Test Bans*, Baltimore, MD, June 2, 1983.
- Bache, T. C., P. D. Marshall, and L. B. Bache, Q for teleseismic P waves from central Asia, *J. Geophys. Res.*, **90**, 3575-3587, 1985.
- Bache, T. C., S. R. Bratt, and L. B. Bache, P-wave attenuation, m_b bias and the Threshold Test Ban Treaty, *Final Technical Report to Defense Advanced Research Projects Agency, SAIC-86/1647*, 152 pp., 1986.
- Bache, T. C., S. R. Bratt, and H. Bungum, High frequency P wave attenuation along five

- teleseismic paths from central Asia, *Geophys. J. R. Astron. Soc.*, 85, 505-522, 1986.
- Bache, T. C., P. D. Marshall, and J. B. Young, High-frequency seismic noise characteristics at the four United Kingdom-type arrays, *Bull. Seismol. Soc. Am.*, 76, 601-616, 1986.
- Baer, R. N., J. S. Perkins, E. B. Wright, and B. B. Adams, An acoustic model for bathymetric scattering with low-frequency applications, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 345-353, Plenum Press, NY, 1986.
- Baggeroer, A. B., and G. L. Duckworth, Seismic Exploration in the Arctic Ocean, Arctic Policy and Technology Proceedings, 1983.
- Baggeroer, A. B., and I. Dyer, Long range, low frequency acoustic backscattering: a survey, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 313-326, Plenum Press, NY, 1986.
- Baggeroer, A. B., and E. K. Scheer, The relative amplitudes of primary and multiple signals refracted in the ocean crust, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 565-578, Plenum Press, NY, 1986.
- Bakun, W. H., Magnitudes and moments of duration, *Bull. Seismol. Soc. Am.*, 74, 2335-2356, 1984.
- Bakun, W. H., Seismic moments, local magnitudes, and coda-duration magnitudes for earthquakes in central California, *Bull. Seismol. Soc. Am.*, 74, 439-458, 1984.
- Bakun, W. H., and W. B. Joyner, The M_L scale in central California, *Bull. Seismol. Soc. Am.*, 74, 1827-1843, 1984.
- Bakun, W. H., and A. G. Lindh, The Parkfield, California, prediction experiment, *Earthq. Pred. Res.*, 3, 285-304, 1985.
- Bakun, W. H., and A. G. Lindh, The Parkfield, California, prediction experiment, *Science*, 229, 619-624, 1985.
- Bakun, W. H., and T. V. McEvilly, Recurrence models and Parkfield, California, earthquakes, *J. Geophys. Res.*, 89, 3051-3058, 1984.
- Bakun, W. H., and M. McLaren, Microearthquakes and the nature of the creeping-to-locked transition of the San Andreas fault zone near San Juan Bautista, California, *Bull. Seismol. Soc. Am.*, 74, 235-254, 1984.
- Bakun, W. H., M. M. Clark, R. Cockerham, W. L. Ellsworth, A. G. Lindh, W. H. Prescott, A. F. Shakal, and P. Spudich, The 1984 Morgan Hill, California, earthquake, in *The Morgan Hill, California Earthquake of April 24, 1984 (A Preliminary Report)*, vol. 1, pp. 1-9, U.S. Geol. Surv. Open-File Rep. 84-498A, 1984.
- Bakun, W. H., M. M. Clark, R. S. Cockerham, W. L. Ellsworth, A. G. Lindh, W. H. Prescott, A. F. Shakal, and P. Spudich, The 1984 Morgan Hill, California, earthquake, *Science*, 225, 288-291, 1984.
- Bakun, W. H., J. Bredehoeft, R. O. Burford, W. L. Ellsworth, M. J. S. Johnston, L. Jones, A. G. Lindh, C. Mortensen, E. Roeloffs, S. Schulz, P. Segall, and W. Thatcher, Parkfield earthquake prediction scenarios and response plans, *U.S. Geol. Surv. Open-File Rep. 86-365*, 30 pp., 1986.
- Bakun, W. H., G. C. P. King, and R. S. Cockerham, Seismic slip, aseismic slip, and the mechanics of repeating earthquakes on the Calaveras fault, California, in *Earthquake Source Mechanics, Maurice Ewing Ser.*, vol. 6, edited by S. Das et al., pp. 196-207, AGU, Washington, DC, 1986.
- Ball, M. M., R. G. Martin, W. D. Bock, R. E. Sylvester, R. M. Bowles, D. Taylor, E. L. Coward, J. E. Dodd, and L. Gilbert, Seismic structure and stratigraphy of the northern edge of Bahama-Cuban collision zone, *Bull. Am. Assn. Petrol. Geologists*, 69, 1275-1294, 1985.
- Ballard, J. A., Marine seismic system (MSS) project, *Initial Reports of the Deep Sea Drilling Project*, in press, 1986.
- Bally, A. W., Seismic expression of structural styles—a picture and work atlas, in *AAPG Studies in Geology Ser. 15*, vols. 1, 2, 3, edited by A. W. Bally, Tulsa, OK, 1983.
- Bame, D., and M. Fehler, Observations of long period earthquakes accompanying hydraulic fracturing, *Geophys. J. R. Astron. Soc.*, 19, 149-152, 1986.
- Baranowski, J., J. Armbruster, L. Seeber, and P. Molnar, Focal depths and fault plane solutions of earthquakes and active tectonics of the Himalaya, *J. Geophys. Res.*, 89, 6918-6928, 1984.
- Barker, J. S., and D. V. Helmberger, A broad-band study of attenuation in ocean bottom sediments, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 609-621, Plenum Press, NY, 1986.
- Barker, J. S., and C. A. Langston, A teleseismic body-wave analysis of the May 1980 Mammoth Lakes, California earthquakes, *Bull. Seismol. Soc. Am.*, 73, 419-434, 1983.
- Barker, J. S., and T. C. Wallace, A note on the teleseismic body waves from the 23 November 1984 Round Valley, California, earthquake, *Bull. Seismol. Soc. Am.*, 76, 883-888, 1986.

6 IUGG BIBLIOGRAPHY

- Barker, P. F., R. T. Buffler, and L. A. Gamboa, A seismic reflection study of the Rio Grande rise, *Initial Reports of the Deep Sea Drilling Project*, 72, 499–517, 1983.
- Barker, R. B., Debate on a comprehensive nuclear weapons test ban: Con., *Physics Today*, 25–29, August 1983.
- Barker, T. G., and J. L. Stevens, Shallow shear wave velocity and Q structures at the El Centro strong motion accelerograph array, *Geophys. Res. Lett.*, 10, 853–856, 1983.
- Barrientos, S. E., S. N. Ward, J. R. González-Ruis, and R. S. Stein, Inversion for moment as a function of depth from geodetic observations and long period body waves of the 1983 Borah Peak, Idaho earthquake, in *Proc. of Workshop XXVIII. On the Borah Peak, Idaho, Earthquake*, vol. A, edited by R. S. Stein and R. C. Bucknam, pp. 485–518, U.S. Geol. Surv. Open-File Rep. 85-290, 1985.
- Bass, J. D., and D. L. Anderson, Composition of the upper mantle: geophysical tests of two petrological models, *Geophys. Res. Lett.*, 11, 237–240, 1984.
- Bath, M., Earthquake frequency and energy in Greece, *Tectonophysics*, 95, 233–252, 1983.
- Baumgardt, D. R., Comparative analysis of teleseismic P coda and Lg waves from underground nuclear explosions in Eurasia, *Bull. Seismol. Soc. Am.*, 75, 1413–1433, 1985.
- Baumgardt, D. R., and S. S. Alexander, Structure of the mantle beneath Montana LASA from analysis of long-period, mode-converted phases, *Bull. Seismol. Soc. Am.*, 74, 1683–1702, 1984.
- Beavan, J., E. Hauksson, S. R. McNutt, K. Jacob, and R. Bilham, Tilt and seismicity changes in the Shumagin seismic gap, *Science*, 222, 322–325, 1983.
- Beavan, J., R. Bilham, and K. Hurst, Coherent tilt signals observed in the Shumagin seismic gap: detection of time-dependent subduction at depth?, *J. Geophys. Res.*, 89, 4478–4492, 1984.
- Beavan, J., K. Hurst, R. Bilham, and L. Shengold, A densely spaced array of sea level monitors for the detection of vertical crustal deformation in the Shumagin seismic gap, Alaska, *J. Geophys. Res.*, 91, 9067–9080, 1986.
- Beck, J. L., and J. F. Hall, Factors contributing to the catastrophe in Mexico City during the earthquake of September 19, 1985, *Geophys. Res. Lett.*, 13, 593–596, 1986.
- Beck, S. I., and T. Lay, A test of the lower mantle slab penetration hypothesis using broadband S waves, *Geophys. Res. Lett.*, 13, 1007–1010, 1986.
- Beck, S. L., and L. J. Ruff, The rupture process of the great 1979 Colombia earthquake: evidence for the asperity model, *J. Geophys. Res.*, 89, 9281–9291, 1984.
- Beck, S. L., and L. J. Ruff, The rupture process of the 1976 Mindanao earthquake, *J. Geophys. Res.*, 90, 6773–6782, 1985.
- Becker, K., R. P. Von Herzen, T. J. G. Francis, R. N. Anderson, J. Honnorez, A. C. Adamson, J. C. Alt, R. Emmermann, P. D. Kepton, H. Kinoshita, C. Laverne, M. J. Mottle, and R. L. Newmark, *In situ* electrical resistivity and bulk porosity of the oceanic crust, Costa Rica rift, *Nature*, 300, 594–598, 1982.
- Bee, M., and R. S. Jacobson, Linear inversion of body wave data Part III: model parameterization, *Geophysics*, 49, 2088–2093, 1984.
- Bee, M., S. H. Johnson, and E. F. Chibaris, Marine seismic refraction study between Cape Simpson and Prudhoe bay, Alaska, *J. Geophys. Res.*, 89, 6941–6960, 1984.
- Beebe, J. H., and C. W. Holland, The effect of unconsolidated sediment rigidity on low frequency acoustic propagation, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 207–215, Plenum Press, NY, 1986.
- Behrendt, J. C., Structural interpretation of multichannel seismic reflection profiles crossing the southeastern United States and the adjacent continental margin—decollements, faults, Triassic(?) basins and Moho reflections, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 201–213, AGU Geodynamics Series, Washington, DC, 1986.
- Behrendt, J. C., R. M. Hamilton, H. D. Ackermann, V. J. Henry, and K. D. Bayer, Marine multichannel seismic reflection evidence for Cenozoic faulting and deep crustal structure near Charleston, South Carolina, in *Studies Related to the Charleston, South Carolina Earthquake of 1886—Tectonics and Seismicity*, edited by G. S. Gohn, pp. J1–J28, U.S. Geol. Surv. Prof. Pap. 1313, 1983.
- Bender, B., A two-state Poisson model for seismic hazard estimation, *Bull. Seismol. Soc. Am.*, 74, 1463–1468, 1984.
- Bender, B., Seismic hazard estimation using a finite-fault rupture model, *Bull. Seismol. Soc. Am.*, 74, 1899–1924, 1984.
- Bender, B., Modeling source zone boundary uncertainty in seismic hazard analysis, *Bull. Seismol. Soc. Am.*, 76, 329–342, 1986.
- Bendimerad, M. F., and J. M. Gere, Non-stationary spectral analysis and modeling of

- three-dimensional ground motion, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 501-508, San Francisco, CA, 1984.
- Bennett, T. J., and J. R. Murphy, Analysis of seismic discrimination capabilities using regional data from western United States events, *Bull. Seismol. Soc. Am.*, 76, 1069-1086, 1986.
- Benz, H. M., and R. B. Smith, Simultaneous inversion for lateral velocity variations and hypocenters in the Yellowstone region using earthquake and refraction data, *J. Geophys. Res.*, 89, 1208-1220, 1984.
- Berge, P. A., and D. A. Stauber, Seismic-refraction study of the upper-crustal structure in the Lassen Peak area, northern California, *J. Geophys. Res.*, in press, 1986.
- Berger, J., L. M. Baker, J. N. Brune, J. B. Fletcher, T. C. Hanks, and F. L. Vernon, III, The Anza array: a high-dynamic-range, broadband, digitally radiotelemetered, seismic array, *Bull. Seismol. Soc. Am.*, 74, 1469-1481, 1984.
- Bergman, E. A., and S. C. Solomon, Source mechanisms of earthquakes near mid-ocean ridges from body waveform inversion: implications for the early evolution of oceanic lithosphere, *J. Geophys. Res.*, 89, 11415-11441, 1984.
- Bergman, E. A., and S. C. Solomon, Earthquake source mechanisms from body-waveform inversion and intraplate tectonics in the northern Indian ocean, *Phys. Earth Planet. Inter.*, 40, 1-23, 1985.
- Bergman, E. A., J. L. Nábělek, and S. C. Solomon, An extensive region of off-ridge normal-faulting earthquakes in the southern Indian ocean, *J. Geophys. Res.*, 89, 2425-2443, 1984.
- Bernreuter, D. L., J. C. Chen, and J. B. Savy, A methodology to correct for the effect of the local site's characteristics in seismic hazard analysis, in *Proc. of 3rd U.S. Nat. Conf. on Earthquake Engin.*, vol. 1, pp. 245-255, Charleston, SC, 1986.
- Besieris, I. M., and W. E. Kohler, The interaction of low-frequency acoustic waves with a one-dimensional random sediment model, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 455-461, Plenum Press, NY, 1986.
- Bessonova, E. N., V. M. Fishman, V. Z. Ryaboyi, and G. A. Sitnikova, The tau method for inversion of traveltimes—deep seismic sounding data, *Geophys. J. R. Astron. Soc.*, 36, 377-398, 1974.
- Bevis, M., and B. L. Isacks, Hypocentral trend surface analysis: probing the geometry of Benioff zones, *J. Geophys. Res.*, 89, 6153-6170, 1984.
- Bibee, L. D., and R. S. Jacobson, Acoustic noise measurements on Axial seamount, Juan de Fuca ridge, *Geophys. Res. Lett.*, 13, 957-960, 1986.
- Bird, P., and J. Baumgardner, Fault friction, regional stress, and crust-mantle coupling in southern California from finite-element models, *J. Geophys. Res.*, 89, 1932-1944, 1984.
- Bird, P., and R. W. Rosenstock, Kinematics of present crust and mantle flow in southern California, *Geol. Soc. Am. Bull.*, 95, 946-957, 1984.
- Birkeland, P. W., Quaternary soils of the western United States, in *Soils and Quaternary Landscape Evolution*, edited by J. Boardman, pp. 303-324, John Wiley, NY, 1985.
- Biswas, N. N., K. Aki, H. Pulpun, and G. Tytgat, Characteristics of regional stresses in Alaska and neighboring areas, *Geophys. Res. Lett.*, 13, 177-180, 1986.
- Blandford, R. R., Seismic event discrimination, *Bull. Seismol. Soc. Am.*, 72, S69-S87, 1982.
- Blandford, R. R., and R. H. Shumway, Magnitude-yield for nuclear explosions in granite at the Nevada test site and Algeria: joint determination with station effects and with data containing clipped and low-amplitude signals, *VSC-TR-82-12*, Teledyne-Geotech, Alexandria, VA, 1982.
- Blandford, R. R., R. H. Shumway, R. Wagner, and K. L. McLaughlin, Magnitude yield for nuclear explosions at several test sites with allowance for effects of truncated data, amplitude correlation between events within test sites, absorption, and pP , *Technical Report to Defense Advanced Research Projects Agency, TGAL-TR-83-6*, 48 pp., 1984.
- Blümling, P., and C. Prodehl, Crustal structure beneath the eastern part of the Coast ranges of central California from explosion-seismic and near-earthquake data, *Phys. Earth and Planet. Inter.*, 31, 313-326, 1983.
- Blümling, P., W. D. Mooney, and W. H. K. Lee, Crustal structures of the southern Calaveras fault zone, central California, from seismic refraction investigations, *Bull. Seismol. Soc. Am.*, 75, 193-209, 1985.
- Boatwright, J., Seismic estimates of stress release, *J. Geophys. Res.*, 89, 6961-6968, 1984.
- Boatwright, J., The effect of rupture complexity on estimates of source size, *J. Geophys. Res.*, 89, 1132-1146, 1984.

8 IUGG BIBLIOGRAPHY

- Boatwright, J., Characteristics of the aftershock sequence of the Borah Peak, Idaho, earthquake determined from digital recordings of the events, *Bull. Seismol. Soc. Am.*, 75, 1265-1284, 1985.
- Boatwright, J., The seismic radiation from composite models of faulting, in *Strong Ground Motion Simulation and Earthquake Engineering Applications, Publ. 85-02*, edited by R. E. Scholl and J. L. King, pp. 14-1-14-9, Earthquake Engin. Res. Inst., El Cerrito, CA, 1985.
- Boatwright, J., and M. Astrue, The effect of site response on high frequency ground motions; analysis of the aftershocks of the New Brunswick earthquake, in *Proc of Conf. XXII, A Workshop on "Site-Specific Effects of Soil and Rock on Ground Motion and the Implications for Earthquake-Resistant Design,"* edited by W. W. Hays, pp. 172-190, U.S. Geol. Surv. Open-File Rep. 83-845, 1983.
- Boatwright, J., and G. L. Choy, Teleseismic estimates of the energy radiated by shallow earthquakes, *J. Geophys. Res.*, 91, 2095-2112, 1986.
- Boatwright, J., and H. Quin, The complex radiation from a 3-D dynamic model of a complex rupture process. Part I: confined ruptures, in *Earthquake Source Mechanics, Maurice Ewing Ser.*, vol. 6, edited by S. Das et al., pp. 97-109, AGU, Washington, DC, 1986.
- Bodin, P., and T. Klinger, Coastal uplift and mortality of intertidal organisms caused by the September 1985 Mexico earthquake, *Science*, 233, 1071-1073, 1986.
- Boler, F. M., An eyewitness observation of oscillatory fault motion accompanying an M_L 5.5 aftershock of the Borah Peak earthquake, in *Proc. of Workshop XXVIII. On the Borah Peak, Idaho, Earthquake*, vol. A, edited by R. S. Stein and R. C. Bucknam, pp. 449-458, U.S. Geol. Surv. Open-File Rep. 85-290, 1985.
- Bollinger, G. A., Speculation on the nature of seismicity at Charleston, South Carolina, in *Studies Related to the Charleston, South Carolina, Earthquake of 1886—Tectonics and Seismicity*, edited by G. S. Gohn, pp. Q1-Q9, U.S. Geol. Surv. Prof. Pap., 1913, 1983.
- Bollinger, G. A., and M. S. Sibol, Seismicity, seismic reflection studies, gravity and geology of the central Virginia seismic zone: Part I. Seismicity, *Geol. Soc. Am. Bull.*, 96, 49-57, 1985.
- Bollinger, G. A., and R. L. Wheeler, The Giles County, Virginia, seismic zone, *Science*, 219, 1063-1065, 1983.
- Bollinger, G. A., M. J. Adams, R. F. Henrisey, and C. J. Langer, The Denver earthquake sequence of March-April 1981, *Earthquake Notes*, 54, 3-12, 1983.
- Bollinger, G. A., M. C. Chapman, M. S. Sibol, and J. K. Costain, An analysis of earthquake focal depths in the southeastern U.S., *Geophys. Res. Lett.*, 12, 785-788, 1985.
- Bolt, B. A., Spatial variability of earthquake intensity from the SMART 1 array, Taiwan, in *Proc of Conf. XXII, A Workshop on "Site-Specific Effects of Soil and Rock on Ground Motion and the Implications for Earthquake-Resistant Design,"* edited by W. W. Hays, pp. 167-171, U.S. Geol. Surv. Open-File Rep. 83-845, 1983.
- Bolt, B. A., The contribution of directivity focusing to earthquake intensities, in *State-of-the Art for Assessing Earthquake Hazards in the United States*, 20, 87 pp., U.S. Army Engin. Waterways Exp. St., Vicksburg, MS, 1983.
- Bolt, B. A., Review of recent advances in seismological aspects of earthquake hazards, in *Proc. of Conf. XXX, A Workshop on "Reducing Potential Losses from Earthquake Hazards in Puerto Rico,"* edited by W. W. Hays and P. L. Gori, pp. 73-103, U.S. Geol. Surv. Open-File Rep. 85-731, 1985.
- Bolt, B. A., and N. A. Abrahamson, Reply to W. B. Joyner and D. M. Boore's "Comments on 'New attenuation relations for peak and expected accelerations of strong ground motion,'" *Bull. Seismol. Soc. Am.*, 73, 1481-1483, 1983.
- Bolt, B. A., and J. A. Canas, Constraints from core reflections on mantle Q and density at the core boundary, *Phys. Earth Planet. Inter.*, 38, 1-8, 1985.
- Bolt, B. A., and L. A. Drake, Love mode dispersion across subduction zones by finite element modeling, *Geophys. J. R. Astron. Soc.*, 84, 515-528, 1986.
- Bolt, B. A., and R. Gutdentsch, Reinterpretation by ray tracing of the tranverse refraction seismic profile through the California Sierra Nevada, Part 1, *Bull. Seismol. Soc. Am.*, 72, 889-900, 1982.
- Bolt, B. A., and M. Niazi, S velocities in D'' from diffracted SH -waves at the core boundary, *Geophys. J. R. Astron. Soc.*, 79, 825-834, 1984.
- Bolt, B. A., Y. B. Tsai, K. Yeh, and M. K. Hsu, Earthquake strong motions recorded by a large near-source array of

- digital seismographs, *Earthquake Engin. and Structural Dynamics*, 10, 561-573, 1982.
- Bolt, B. A., N. Abrahamson, and Y. T. Yeh, The variation of strong ground motion over short distances, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 183-189, San Francisco, CA, 1984.
- Bolt, B. A., R. A. Uhrhammer, and R. B. Darragh, The Morgan Hill earthquake of April 24, 1984—seismological aspects, *Earthquake Spectra*, 1, 407-418, 1985.
- Bonafede, M., E. Boschi, and M. Dragoni, On the recurrence time of great earthquakes on a long transform fault, *J. Geophys. Res.*, 87, 10551-10556, 1982.
- Bonafede, M., E. Boschi, and M. Dragoni, Fault slip beyond a barrier on a transform plate boundary, *Geophys. J. R. Astron. Soc.*, 75, 143-154, 1983.
- Bonilla, M. G., R. K. Mark, and J. J. Lienkaemper, Statistical relations among earthquake magnitude, surface rupture length and surface fault displacement, *Bull. Seismol. Soc. Am.*, 74, 2379-2412, 1984.
- Bonilla, M. G., H. A. Villalobos, and R. E. Wallace, Exploratory trench across the Pleasant Valley fault, Nevada, *U.S. Geol. Surv. Prof. Paper 1274-B*, B1-B4, 1984.
- Boore, D. M., Stochastic simulation of high-frequency ground motions based on seismological models of the radiated spectra, *Bull. Seismol. Soc. Am.*, 73, 1865-1894, 1983.
- Boore, D. M., Strong-motion seismology, *Rev. Geophys.*, 21, 1303-1318, 1983.
- Boore, D. M., Use of seismoscope records to determine M_L and peak velocities, *Bull. Seismol. Soc. Am.*, 74, 315-324, 1984.
- Boore, D. M., Short-period P- and S-wave radiation from large earthquakes: implications for spectral scaling relations, *Bull. Seismol. Soc. Am.*, 76, 43-64, 1986.
- Boore, D. M., The effect of finite bandwidth on seismic scaling relationships, in *Earthquake Source Mechanics, Maurice Ewing Ser.*, vol. 6, edited by S. Das et al., pp. 276-283, AGU, Washington, DC, 1986.
- Boore, D. M., and G. M. Atkinson, Prediction of ground-motion and spectral-response parameters in eastern North America (abs.), *Earthquake Notes*, 57, 28, 1986.
- Boore, D. M., and K. Hutton, Attenuation of peak motions from Wood-Anderson seismographs in southern California (abs.), *Earthquake Notes*, 55, 25, 1984.
- Boore, D. M., and W. B. Joyner, A note on the use of random vibration theory to predict peak amplitudes of transient signals, *Bull. Seismol. Soc. Am.*, 74, 2035-2039, 1984.
- Boore, D. M., and W. B. Joyner, Ground motions and response spectra at soil sites from seismological models of radiated spectra, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 457-464, San Francisco, CA, 1984.
- Boore, D. M., and W. B. Joyner, Prediction of earthquake ground motion at periods of interest for base-isolated structures, *Proc. of a Seminar and Workshop on Base Isolation and Passive Energy Dissipation*, ATC-17, pp. 355-370, Applied Tech. Council, Redwood City, CA, 1986.
- Boore, D. M., A. G. Lindh, B. E. Tucker, A. F. Shakal, and R. D. McJunkin, Some studies concerning site response: Part 1. Preliminary analysis of Parkfield array recordings of the Coalinga earthquake, Part 2. Stability estimates of site response, in *Proc. of Conf. XXII, A Workshop on "Site-Specific Effects of Soil and Rock on Ground Motion and the Implications for Earthquake-Resistant Design,"* edited by W. W. Hays, pp. 144-166, U.S. Geol. Surv. Open-File Rep. 83-845, 1983.
- Borchardt, G., and R. L. Hill, Smectitic pedogenesis and late Holocene tectonism along the Raymond fault, San Marino, California, in *Soils and Quaternary Geology of the Southwestern United States*, edited by D. L. Weide, pp. 65-78, *Geol. Soc. Am. Spec. Pap. 203*, 1985.
- Borcherdt, R. D., Studies for seismic zonation of the San Francisco bay region, *Geol. Surv. Prof. Paper 941-A*, edited by R. D. Borcherdt, 102 pp., U.S. Gov't Printing Office, Washington, DC, 1975.
- Borcherdt, R. D., On recent advances in strong-motion data acquisition capabilities, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 63-70, San Francisco, CA, 1984.
- Borcherdt, R. D., On anelastic earth structure and seismic waves, in *Strong Ground Motion Simulation and Earthquake Engineering Applications*, Publ. 85-02, edited by R. E. Scholl and J. L. King, pp. 27-1-27-18, *Earthquake Engin. Res. Inst.*, El Cerrito, CA, 1985.
- Borcherdt, R. D., Predicting earthquake ground motion: an introduction, in *Evaluating Earthquake Hazards in the Los Angeles Region—An Earth-Science Perspective*, edited by J. I. Ziony, pp. 93-99, *U.S. Geol. Surv. Prof. Pap. 1360*, 1985.
- Borcherdt, R. D., (ed.), Preliminary report on aftershock sequence for earthquake of January

- 31, 1986 near Painesville, Ohio (time period: 2/1/86-2/10/86), *U.S. Geol. Surv. Open-File Rep. 86-181*, 15 pp., 1986.
- Borcherdt, R. D., and B. A. Bolt, Planning considerations for recording the next major earthquake in California, in *Strong Ground Motion Simulation and Earthquake Engineering Applications*, *Publ. 85-02*, edited by R. E. Scholl and J. L. King, pp. 10-1-10-20, Earthquake Engin. Res. Inst., El Cerrito, CA, 1985.
- Borcherdt, R., E. Cranswick, G. Maxwell, C. Mueller, R. McClearn, G. Sembera, and L. Wennerberg, Digital strong-motion data recorded by U.S. Geological Survey near Coalinga, California, in *The Coalinga Earthquake Sequence Commencing May 2, 1983*, pp. 61-76, *U.S. Geol. Surv. Open-File Rep. 83-511*, 1983.
- Borcherdt, R. D., C. S. Mueller, and L. G. Wennerberg, Effects of local geological conditions on strong ground motions in the vicinity of Coalinga, California, in *Proc. of Conf. XXII, A Workshop on "Site-Specific Effects of Soil and Rock on Ground Motion and the Implications for Earthquake-Resistant Design,"* edited by W. W. Hays, pp. 114-143, *U.S. Geol. Surv. Open-File Rep. 83-845*, 1983.
- Borcherdt, R. D., J. G. Anderson, C. B. Crouse, N. C. Donovan, T. V. McEvilly, and A. F. Shakal, National planning considerations for the acquisition of strong-ground-motion data, *Pub. 84-08*, 57 pp., Earthquake Engin. Res. Inst., El Cerrito, CA, 1984.
- Borcherdt, R. D., J. B. Fletcher, E. G. Jensen, G. L. Maxwell, J. R. Van Schaack, R. E. Warrick, E. Cranswick, M. J. S. Johnston, and R. McClearn, A general earthquake-observation system, *Bull. Seismol. Soc. Am.*, 75, 1783-1825, 1985.
- Bosher, R., and F. K. Duennebier, Seismicity associated with the Christmas 1965 event at Kilauea volcano, *J. Geophys. Res.*, 90, 4529-4536, 1985.
- Boss, A. P., and I. S. Sacks, Formation and growth of deep mantle plumes, *Geophys. J. R. Astron. Soc.*, 80, 241-255, 1985.
- Böttcher, C., and R. A. Phinney, Seismic profiling in Maine: comparison of refraction and multichannel wide angle reflection data (abs.), *Eos (Trans. Amer. Geophys. Un.)*, 66, 308, 1985.
- Bowman, J. R., and C. Kisslinger, A test of foreshock occurrence in the central Aleutian Island arc, *Bull. Seismol. Soc. Am.*, 74, 181-197, 1984.
- Bowman, J. R., and C. Kisslinger, Seismicity associated with a cluster of earthquakes of $M_b > 4.5$ near Adak, Alaska: evidence for an asperity?, *Bull. Seismol. Soc. Am.*, 75, 223-236, 1985.
- Boyd, T. M., and K. C. Creager, Kinematic and travel time constraints on aseismic extensions of the Aleutian slab, *Eos (Trans. Amer. Geophys. Un.)*, 67, 380, 1986.
- Boyd, T. M., and K. Jacob, Seismicity of the Unalaska region, Alaska, *Bull. Seismol. Soc. Am.*, 76, 463-494, 1986.
- Boyd, T. M., J. A. Snook, I. S. Sacks, and A. Rodriguez, High-resolution determination of the Benioff zone geometry beneath southern Peru, *Bull. Seismol. Soc. Am.*, 74, 559-568, 1984.
- Brady, A. G., and P. N. Mork, Synthetic accelerograms for testing processing procedures, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 127-134, San Francisco, CA, 1984.
- Brady, A. G., and V. Perez, Processed accelerograms from Coyote dam, California, March 25, 1978, *U.S. Geol. Surv. Open-File Rep. 83-166*, 82 pp., 1986.
- Brady, A. G., and A. F. Shakal, The Morgan Hill earthquake of April 24, 1984—strong-motion records, *Earthquake Spectra*, 1, 419-443, 1985.
- Brady, A. G., R. L. Porcella, G. N. Bycroft, E. C. Etheredge, P. N. Mork, B. Silverstein, and A. F. Shakal, Strong-motion results from the main shock of April 24, 1984—computer plots, *The Morgan Hill, California Earthquake of April 24, 1984 (A Preliminary Report)*, vol. 2, *U.S. Geol. Surv. Open-File Rep. 84-498B*, 118 pp., 1984.
- Brady, A. G., R. L. Porcella, G. N. Bycroft, E. C. Etheredge, P. N. Mork, B. Silverstein, and A. F. Shakal, Strong-motion results from the main shock of April 24, 1984, in *The Morgan Hill, California Earthquake of April 24, 1984 (A Preliminary Report)*, vol. 1, pp. 18-26, *U.S. Geol. Surv. Open-File Rep. 84-498A*, 1984.
- Brady, A. G., E. C. Etheredge, R. P. Maley, P. N. Mork, B. L. Silverstein, D. A. Johnson, A. V. Acosta, R. D. Forshee, and M. J. Salsman, Preliminary report on records from the USGS-maintained strong-motion network in the Hollister area January 26, 1986, *U.S. Geol. Surv. Open-File Rep. 86-156*, 43 pp., 1986.
- Brady, A. G., P. N. Mork, and B. L. Silverstein, Processed strong-motion records from the 2317:41, 2318:21, and 2318:40 aftershocks of the October 15, 1979, 2316:54 GMT

- earthquake, Imperial Valley, California, U.S. *Geol. Surv. Open-File Rep.* 86-441, 300 pp., 1986.
- Braile, L. W., and C. S. Chiang, The continental Mohorovicic discontinuity: results from near-vertical and wide-angle seismic reflection studies, in *Reflection Seismology: A Global Perspective*, vol. 13, edited by M. Barazangi and L. Brown, pp. 257-272, AGU Geodynamics Series, Washington, DC, 1986.
- Braile, L. W., G. R. Keller, W. J. Hinze, and E. G. Lidiak, An ancient rift complex and its relation to contemporary seismicity in the New Madrid seismic zone, *Tectonics*, 2, 225-237, 1982.
- Bramlett, K. W., D. T. Secor, Jr., and D. C. Prowell, The Belair fault: a Cenozoic reactivation structure in the eastern Piedmont, *Geol. Soc. Am. Bull.*, 93, 1109-1117, 1982.
- Bratt, S. R., and G. M. Purdy, Structure and variability of oceanic crust on the flanks of the east Pacific rise between 11° and 13° N, *J. Geophys. Res.*, 89, 6111-6125, 1984.
- Bratt, S. R., and S. C. Solomon, Compressional and shear wave structure of the east Pacific rise at $11^{\circ}20'N$. Constraints from three-component ocean-bottom seismometer data, *J. Geophys. Res.*, 89, 6095-6110, 1984.
- Bratt, S. R., E. A. Bergman, and S. C. Solomon, Thermoelastic stress: how important as a cause of earthquakes in young oceanic lithosphere?, *J. Geophys. Res.*, 90, 10249-10260, 1985.
- Breding, D. R., Data user's guide for the Regional Seismic Test Network (RSTN), *Rept. SAND82-2935*, Sandia Lab., Albuquerque, NM, 1983.
- Brewer, J. A., R. Good, J. E. Oliver, L. D. Brown, and S. Kaufman, COCORP profiling across the southern Oklahoma aulacogen: overthrusting of the Wichita Mountains and compression within the Anadarko basin, *Geology*, 11, 109-114, 1983.
- Brill, K. G., and O. W. Nuttli, Seismicity of the Colorado lineament, *Geology*, 11, 20-24, 1983.
- Brillinger, D. R., Seismic risk assessment: some statistical aspects, *Earthq. Pred. Res.*, 1, 183-195, 1982.
- Brillinger, D. R., and H. K. Preisler, An exploratory analysis of the Joyner-Boore attenuation data, *Bull. Seismol. Soc. Am.*, 74, 1441-1450, 1984.
- Brillinger, D. R., and H. K. Preisler, Further analysis of the Joyner-Boore attenuation data, *Bull. Seismol. Soc. Am.*, 75, 611-614, 1985.
- Brocher, T. M., Shallow crustal structure of the continental margin off Nova Scotia, *Can. J. Earth Sciences*, 20, 1657-1672, 1983.
- Brocher, T. M., T-phases from an earthquake swarm on the Mid-Atlantic ridge at 31.6° N, *Marine Geophys. Res.*, 6, 39-49, 1983.
- Brocher, T. M., and J. I. Ewing, A comparison of high-resolution seismic methods for determining seabed velocities in shallow water, *J. Acoust. Soc. Am.*, 79, 286-298, 1986.
- Brocher, T. M., W. C. Kempner, and J. F. Gettrust, A comparison of synthetic p-tau sections for proposed models of two ophiolites, *J. Geophys. Res.*, 87, 9355-9364, 1982.
- Brocher, T. M., J. A. Karson, and J. A. Collins, Seismic stratigraphy of the oceanic Moho based on ophiolite models, *Geology*, 13, 62-65, 1985.
- Brown, B. D., A linement array measurement following the 24 April 1984 Morgan Hill earthquake, in *The Morgan Hill, California Earthquake of April 24, 1984 (A Preliminary Report)*, vol. 1, pp. 60-63, U.S. *Geol. Surv. Open-File Rep.* 84-498A, 1984.
- Brown, L. D., Aspects of COCORP deep seismic profiling, in *Reflection Seismology: A Global Perspective*, vol. 13, edited by M. Barazangi and L. Brown, pp. 209-222, AGU Geodynamics Series, Washington, DC, 1986.
- Brown, L., C. Ando, S. Klempner, J. Oliver, S. Kaufman, B. Czuchra, T. Walsh, and Y. W. Isachsen, Adirondack-Appalachian crustal structure: the COCORP northeast traverse, *Geol. Soc. Am. Bull.*, 94, 1173-1184, 1983.
- Brown, L., S. T. Setzer, J. Oliver, S. Kaufman, R. Lillie, D. Steiner, and D. W. Steeples, Intracrustal complexity in the United States midcontinent: preliminary results from COCORP surveys in northeastern Kansas, *Geology*, 11, 25-30, 1983.
- Brown, L., M. Barazangi, S. Kaufman, and J. Oliver, The first decade of COCORP: 1974-1984, in *Reflection Seismology: A Global Perspective*, vol. 13, edited by M. Barazangi and L. Brown, pp. 107-120, AGU Geodynamics Series, Washington, DC, 1986.
- Brune, J. N., Tectonic stress and the spectra of seismic shear waves from earthquakes, *J. Geophys. Res.*, 75, 4997-5009, 1970.
- Brune, J. N., Correction, *J. Geophys. Res.*, 76, 5002, 1971.
- Brune, J. N., Preliminary results on topographic seismic amplification effect on a foam rubber model of the topography near Pacoima dam, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 663-670, San Francisco, CA, 1984.

- Brune, J. N., and D. D. Singh, Continent-like crustal thickness beneath the Bay of Bengal sediments, *Bull. Seismol. Soc. Am.*, **76**, 191–203, 1986.
- Brune, J. N., R. Anooshehpoor, R. Lovberg, and L. Wang, Topographic seismic amplification and dam-foundation interaction on a foam rubber model of the topography near Pacoima dam, in *Strong Ground Motion Simulation and Earthquake Engineering Applications*, *Publ. 85-02*, edited by R. E. Scholl and J. L. King, pp. 26-1–26-8, Earthquake Engin. Res. Inst., El Cerrito, CA, 1985.
- Brune, J. N., J. Fletcher, F. Vernon, L. Haar, T. Hanks, and J. Berger, Low stress-drop earthquakes in the light of new data from the Anza, California telemetered digital array, in *Earthquake Source Mechanics*, Maurice Ewing Ser., vol. 6, edited by S. Das et al., pp. 238–245, AGU, Washington, DC, 1986.
- Bryne, D. A., D. Harris, F. K. Duennebier, and R. Cessaro, The ocean sub-bottom seismometer system installed in Deep Sea Drilling Project Hole 581C, Leg 88: a technical review, *Initial Reports of the Deep Sea Drilling Project*, in press, 1986.
- Bucher, H. P., and M. B. Porter, Gaussian beams and 3-D bottom interacting acoustic systems in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 87–101, Plenum Press, NY, 1986.
- Buchun, Z., L. Yuhua, G. Shunmin, R. E. Wallace, R. C. Bucknam, and T. C. Hanks, Fault scarps related to the 1739 earthquake and seismicity of the Yinchuan graben, Ningxia Huizu Zizhiqu, China, *Bull. Seismol. Soc. Am.*, **76**, 1253–1289, 1986.
- Budiansky, B., E. E. Summer, and R. J. O'Connell, Bulk thermoelastic attenuation of composite materials, *J. Geophys. Res.*, **88**, 10343–10348, 1983.
- Bull, W. B., Correlation of flights of global marine terraces, in *Tectonic Geomorphology*, *Proc. of the 15th Annual Binghamton Geomorphology Symposium*, edited by M. Morisawa and J. T. Hack, pp. 129–152, Allen and Unwin, Boston, MA, 1985.
- Bullett, J. T., and V. F. Cormier, The relative performance of m_b and alternative measures of elastic energy in estimating source size and explosion yield, *Bull. Seismol. Soc. Am.*, **74**, 1863–1864, 1984.
- Burbach, G. V., and C. Frohlich, Intermediate and deep seismicity and lateral structure of subducted lithosphere in the circum-Pacific region, *Rev. Geophys.*, **24**, 833–874, 1986.
- Burbach, G. V., C. Frohlich, W. D. Pennington, and T. Matumoto, Seismicity and tectonics of the subducted Cocos plate, *J. Geophys. Res.*, **89**, 7719–7735, 1984.
- Burdick, L. J., Estimation of the frequency dependence of Q from ScP and ScS phasis, *Geophys. J. R. Astron. Soc.*, **80**, 35–55, 1985.
- Burdick, L. J., and S. P. Grand, Estimation of t^* for Asian travel paths using SP and sS phases, in *The VELA Project*, edited by A. Kerr, pp. 677–692, 1985.
- Burdick, L. J., and C. A. Salavdo, Modeling body wave amplitude fluctuations using the three-dimensional slowness method, *J. Geophys. Res.*, **91**, 12482–12496, 1986.
- Burdick, L. J., T. Wallace, and T. Lay, Modeling near-field and teleseismic observations from the Amchitka test site, *J. Geophys. Res.*, **89**, 4373–4388, 1984.
- Bureau, G., New considerations for offshore seismic response studies, in *Proc. of 3rd U.S. Nat. Conf. on Earthquake Engin.*, vol. 1, pp. 789–795, Charleston, SC, 1986.
- Burger, R. W., and C. A. Langston, Source mechanism of the May 18, 1980, Mount St. Helens eruption from regional surface waves, *J. Geophys. Res.*, **90**, 7653–7664, 1985.
- Burger, R. W., L. J. Burdick, and T. Lay, Estimating the relative yields of Novaya Zemlya tests by waveform intercorrelation, *Geophys. J. R. Astron. Soc.*, **87**, 775–800, 1986.
- Burger, R. W., T. Lay, and L. J. Burdick, Average Q and yield estimates from the Pahute mesa test site, *Bull. Seismol. Soc. Am.*, in press, 1986.
- Burger, R. W., T. Lay, T. C. Wallace, and L. J. Burdick, Evidence of tectonic release in long-period S waves from underground nuclear explosions at the Novaya Zemlya test sites, *Bull. Seismol. Soc. Am.*, **76**, 733–755, 1986.
- Burkart, B., and S. Self, Extension and rotation of crustal blocks in northern Central America and effect on the volcanic arc, *Geology*, **13**, 22–26, 1985.
- Burke, K., C. Cooper, J. F. Dewey, P. Mann, and J. L. Pindell, Caribbean tectonics and relative plate motion, in *Geol. Soc. Am. Memoir 162, Geophys. Monogr. Ser.*, edited by W.E. Bonini et al., pp. 31–63, Geol. Soc. Am., Boulder, CO, 1984.
- Burnett, A. W., and S. A. Schumm, Active tectonics and river response in Louisiana and Mississippi, *Science*, **222**, 49–50, 1983.
- Burnett, M. S., J. A. Orcutt, and J. S. McClain, Further refraction evidence for a crustal magma chamber, *Eos (Trans. Amer. Geophys. Un.)*, **66**, 1091, 1985.

- Burnetti, J. A., and D. W. Rivers, Hide-in-earthquake evasion studies using broadband data, *Technical Report to the Defense Advanced Research Projects Agency, TGAL-TR-84-5*, 70 pp., 1984.
- Busse, F. H., Quadrupole convection in the lower mantle?, *Geophys. Res. Lett.*, 10, 285-288, 1983.
- Butler, R., P-wave travel time and amplitude in western North America, *Nature*, 36, 677-678, 1983.
- Butler, R., Azimuth, energy, Q, and temperature: variations on P wave amplitudes in the United States, *Rev. Geophys.*, 22, 1-36, 1984.
- Butler, R., P-wave amplitudes in the United States: east-west variations and variability, *Geophys. J. R. Astron. Soc.*, 77, 767-774, 1984.
- Butler, R., Anisotropic propagation of P- and S-waves in the western Pacific lithosphere, *Geophys. J. R. Astron. Soc.*, 81, 89-101, 1985.
- Butler, R., P wave amplitude variation between the eastern and western United States; reply to Z. A. Der, *Geophys. J. R. Astron. Soc.*, 81, 385-388, 1985.
- Butler, R., Amplitudes at the antipode, *Bull. Seismol. Soc. Am.*, 76, 1355-1365, 1986.
- Butler, R., Regional seismic observations of the Ontong Java plateau and east Mariana basin, *Mar. Geophys. Res.*, 8, 27-38, 1986.
- Butler, R., and F. K. Duennenbier, Seismic observations from an ocean subbottom seismometer in the northwest Pacific basin, *Bull. Seismol. Soc. Am.*, 76, 565-577, 1986.
- Butler, R., and F. K. Duennenbier, Teleseismic observations from OSS IV, *Initial Reports of the Deep Sea Drilling Project*, in press, 1986.
- Butler, R., T. M. Brocher, and J. A. Rial, Inner core experiments: teleseismic exploration of the antipode, *Eos (Trans. Amer. Geophys. Un.)*, 67, 89-94, 1986.
- Butler, R., C. McCreery, L. N. Frazer, and D. Walker, High-frequency seismic attenuation of oceanic P- and S-waves in the western Pacific, *J. Geophys. Res.*, in press, 1986.
- Byrne, T., Eocene underplating along the Kodiak shelf, Alaska: implications and regional correlations, *Tectonics*, 5, 403-421, 1986.
- Cahill, T., and B. L. Isacks, An apparent double-planed Benioff zone beneath northern Chile resulting from misidentification of reflected phases, *Geophys. Res. Lett.*, 13, 333-336, 1986.
- Cakmak, A. S., and R. I. Sherif, Parametric time series models for earthquake strong ground motions and their relationship to site parameters, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 581-588, San Francisco, CA, 1984.
- Cakmak, A. S., R. I. Sherif, and G. Ellis, Modelling earthquake ground motions in California using parametric time series methods, *Soil Dynamics and Earthquake Engin.*, 4, 124-131, 1985.
- California Strong Motion Instrumentation Program, Selected accelerograms from the Redlands, California earthquake of October 2, 1985 (including first records from a base-isolated building), *Rep. OMS 85-02*, 18 pp., Office of Strong Motion Studies, Calif. Div. Mines and Geol., Sacramento, CA, 1985.
- Campbell, K. W., Near-source attenuation of peak horizontal acceleration, *Bull. Seismol. Soc. Am.*, 71, 2039-2070, 1981.
- Campbell, K. W., Bayesian analysis of extreme earthquake occurrences, Part II. Application to the San Jacinto fault zone of southern California, *Bull. Seismol. Soc. Am.*, 73, 1099-1116, 1983.
- Campbell, K. W., The effects of site characteristics on near-source recordings of strong ground motion, in *Proc. of Conf. XXII, A Workshop on "Site-Specific Effects of Soil and Rock on Ground Motion and the Implications for Earthquake-Resistant Design,"* edited by W. W. Hays, pp. 280-309, U.S. Geol. Surv. Open-File Rep. 83-845, 1983.
- Campbell, K. W., Near-source attenuation of strong ground motion for moderate to large earthquakes—an update and suggested application to the Wasatch fault zone of north-central Utah, in *Proc. of Conf. XXVI, A Workshop on "Evaluation of Regional and Urban Earthquake Hazards and Risk in Utah,"* edited by W. W. Hays and P. L. Gori, pp. 483-499, U.S. Geol. Surv. Open-File Rep. 84-763, 1984.
- Campbell, K. W., Observed structural modification of recorded strong ground motion, in *Critical Aspects of Earthquake Ground Motion and Building Damage Potential, ATC-10-1*, pp. 43-52, Applied Tech. Council, Redwood City, CA, 1984.
- Campbell, K. W., Strong motion attenuation relations: a ten-year perspective, *Earthquake Spectra*, 1, 759-804, 1985.
- Campbell, K. W., An empirical estimate of near-source ground motion for a major, $m_b = 6.8$, earthquake in the eastern United States, *Bull. Seismol. Soc. Am.*, 76, 1-17, 1986.

- Cao, T. Q., and K. Aki, Assigning probability gain for precursors of four large Chinese earthquakes, *J. Geophys. Res.*, **88**, 2185–2190, 1983.
- Cao, T. Q., and K. Aki, Seismicity simulation with a mass-spring model and a displacement hardening-softening friction law, *Pageoph*, **122**, 10–24, 1984/85.
- Cape, C. D., S. McGreary, and G. A. Thompson, Cenozoic normal faulting and the shallow structure of the Rio Grande rift near Socorro, New Mexico, *Geol. Soc. Am. Bull.*, **94**, 3–14, 1983.
- Carey, W. M., R. A. Wagstaff, B. Brunson, and M. Bradley, Low frequency noise fields and signal characteristics, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 753–766, Plenum Press, NY, 1986.
- Carpenter, P. J., and A. R. Sanford, Apparent *Q* for upper crustal rocks of the central Rio Grande rift, *J. Geophys. Res.*, **90**, 8661–8674, 1985.
- Carrión, P. M., Estimation of subsurface parameters in lossy media, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 547–552, Plenum Press, NY, 1986.
- Carter, J. A., and L. N. Frazer, Rapid *F-K* migration of zero offset marine reflection data, *J. Geophys. Res.*, **87**, 9365–9373, 1982.
- Carter, J. A., and L. N. Fraser, A method of modeling reflection data from media with lateral velocity changes, *J. Geophys. Res.*, **88**, 6469–6476, 1983.
- Carter, J. A., and L. N. Frazer, Accommodating lateral velocity changes in Kirchhoff migration by means of Fermat's principle, *Geophysics*, **49**, 46–53, 1984.
- Carter, J. A., G. H. Sutton, and A. Suteau-Henson, Analysis of ocean-subbottom seismograph (OSS) data, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 553–563, Plenum Press, NY, 1986.
- Carver, D., W. D. Richins, and C. J. Langer, Details of the aftershock process following the 30 September 1977 Uinta basin, Utah, earthquake, *Bull. Seismol. Soc. Am.*, **73**, 435–448, 1983.
- Catchings, R. D., and W. D. Mooney, Crustal structure of the Columbia plateau, southeastern Washington from seismic refraction, *J. Geophys. Res.*, *in press*, 1987.
- Çelebi, M., A feature of the 3 March 1985 Chile earthquake—possible terrain amplification, *Proc. of 3rd U.S. Nat. Conf. on Earthquake Engin.*, vol. 1, pp. 125–136, Charleston, SC, 1986.
- Cessaro, R. K., and F. K. Duennebier, Regional earthquakes recorded by ocean-bottom seismometers (OBS) and an ocean sub-bottom seismometer (OSS IV) on Leg 88, *Initial Reports of the Deep Sea Drilling Project*, **88**, *in press*, 1986.
- Cessaro, R. K., and D. M. Hussong, Transform seismicity at the intersection of the Oceanographer fracture zone and the Mid-Atlantic ridge, *J. Geophys. Res.*, **91**, 4839–4853, 1986.
- Chan, W. W., and B. J. Mitchell, Surface wave dispersion, crustal structure, and sediment thickness across the Barents shelf, *Geophys. J. R. Astron. Soc.*, **80**, 329–344, 1985.
- Chandra, U., Focal mechanism solutions for earthquakes in Iran, *Phys. Earth Planet. Inter.*, **34**, 9–16, 1984.
- Chandra, U., Tectonic segmentation of the Burmese–Indonesian arc, *Tectonophysics*, **105**, 279–289, 1984.
- Chang, M. K., J. W. Kwiatkowski, R. F. Nau, R. M. Oliver, and K. S. Pister, ARMA models for earthquake ground motions, *Earthquake Engin. and Structural Dynamics*, **10**, 651–662, 1982.
- Chang, N. Y., M. J. Huang, B. H. Lien, and F. K. Chang, EQGEN—a user-friendly artificial earthquake simulation program, in *Proc. of 3rd U.S. Nat. Conf. on Earthquake Engin.*, **1**, pp. 439–450, Charleston, SC, 1986.
- Chao, C.-H., T.-L. Teng, and Z. Zhen, The crust and upper mantle of the Pacific ocean basin, *Eos (Trans. Amer. Geophys. Un.)*, **64**, 759, 1983.
- Chapman, C. H., A new method for computing synthetic seismograms, *Geophys. J. R. Astron. Soc.*, **54**, 481–518, 1978.
- Chapman, C. H., and J. A. Orcutt, Least squares fitting of marine seismic refraction data, *Geophys. J. R. Astron. Soc.*, **82**, 339–374, 1985.
- Chapman, C. H., and J. A. Orcutt, The computation of body wave synthetic seismograms in laterally homogeneous media, *Rev. Geophys.*, **23**, 105–163, 1985.
- Chatelain, J.-L., R. K. Cardwell, and B. L. Isacks, Expansion of the aftershock zone following the Vanuatu (New Hebrides) earthquake on 15 July 1981, *Geophys. Res. Lett.*, **10**, 385–388, 1983.
- Chatelain, J.-L., B. L. Isacks, R. K. Cardwell, and R. Prévot, Patterns of seismicity associated with asperities in the central New Hebrides Island arc, *J. Geophys. Res.*, **91**, 12497–12519, 1986.

- Chatterjee, A. K., and L. Knopoff, Bilateral propagation of a spontaneous two-dimensional anti-plane shear crack under the influence of cohesion, *Geophys. J. R. Astron. Soc.*, **72**, 449-473, 1983.
- Chávez, D. E., and K. F. Priestley, M_L observations in the Great basin and M_o versus M_L relationships for the Mammoth Lakes, California, earthquake sequence, *Bull. Seismol. Soc. Am.*, **75**, 1583-1598, 1985.
- Chávez, D. E., and K. F. Priestley, Measurement of frequency dependent L_g attenuation in the Great basin, *Geophys. Res. Lett.*, **13**, 551-554, 1986.
- Cheadle, J., B. L. Czuchra, C. J. Ando, T. Byrne, L. D. Brown, J. E. Oliver, and S. Kaufman, Geometries of deep crustal faults: evidence from the COCORP Mojave survey, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 305-312, AGU Geodynamic Series, Washington, DC, 1986.
- Cheadle, M. J., B. L. Czuchra, T. Byrne, C. J. Ando, J. E. Oliver, L. D. Brown, S. Kaufman, P. E. Malin, and R. A. Phinney, The deep crustal structure of the Mojave desert, California, from COCORP seismic reflection data, *Tectonics*, **5**, 293-320, 1986.
- Chen, A. T. F., Application of modulus degradation model of clays, *J. Geotech. Engin. Div., Am. Soc. Civil Engin.*, **108**, 1203-1214, 1982.
- Chen, A. T. F., Transmitting boundaries and seismic response, *J. Geotech. Engin. Div., Am. Soc. Civil Engin.*, **111**, 174-180, 1985.
- Chen, W. P., and P. Molnar, Focal depths of intracontinental and intraplate earthquakes and their implications for the thermal and mechanical properties of the lithosphere, *J. Geophys. Res.*, **88**, 4183-4214, 1983.
- Chinn, D. S., and B. L. Isacks, Accurate source depths and focal mechanisms of shallow earthquakes in western south America and in the New Hebrides Island arc, *Tectonics*, **2**, 529-563, 1983.
- Chiu, A. N. L., W. B. Lum, N. N. Nielson, and R. Koyanagi, Damage survey of the Kaoiki, Hawaii earthquake of November 16, 1983, *Earthquake Spectra*, **1**, 173-195, 1984.
- Chiu, J.-M., A. C. Johnston, A. G. Metzger, L. Haar, and J. Fletcher, Analysis of analog and digital records of the 1982 Arkansas earthquake swarm, *Bull. Seismol. Soc. Am.*, **74**, 1721-1742, 1984.
- Chiu, J.-M., B. L. Isacks, and R. K. Cardwell, Propagation of high-frequency seismic waves inside the subducted lithosphere from intermediate-depth earthquakes recorded in the Vanuatu arc, *J. Geophys. Res.*, **90**, 12741-12754, 1985.
- Chiu, J.-M., B. L. Isacks, and R. K. Cardwell, Studies of crustal converted waves using short-period seismograms recorded in the Vanuatu Island arc, *Bull. Seismol. Soc. Am.*, **76**, 177-190, 1986.
- Chouet, B., Excitation of a buried magmatic pipe: a seismic source model for volcanic tremor, *J. Geophys. Res.*, **90**, 1881-1893, 1985.
- Chouet, B., and B. R. Julian, Dynamics of an expanding fluid-filled crack, *J. Geophys. Res.*, **90**, 11187-11198, 1985.
- Chouet, B., R. Y. Koyanagi, and K. Aki, Origin of volcanic tremor in Hawaii, Part II. Theory and discussion, in *Volcanism in Hawaii*, edited by R. W. Decker et al., pp. 1259-1280, U.S. Geol. Surv. Prof. Pap., **1350**, 2, 1987.
- Choy, G. L., Source parameters of the Coalinga, California earthquake of May 2, 1983 inferred from broadband body waves, *Proc. of Workshop XXVII, Mechanics of the May 2, 1983 Coalinga Earthquake*, edited by M. J. Rymer and W. L. Ellsworth, pp. 83-131, U.S. Geol. Surv. Open-File Rep. 85-44, 1985.
- Choy, G. L., Source parameters of the Coalinga, California earthquake of May 2, 1983 inferred from broadband body waves, *U.S. Geol. Surv. Prof. Pap.*, *in press*, 1986.
- Choy, G. L., and V. F. Cormier, The structure of the inner core inferred from short-period and broadband GDSN data, *Geophys. J. R. Astron. Soc.*, **72**, 1-21, 1983.
- Choy, G. L., and V. F. Cormier, Direct measurement of the mantle attenuation operator from broadband *P* and *S* waveforms, *J. Geophys. Res.*, **91**, 7326-7342, 1986.
- Choy, G. L., J. Boatwright, J. W. Dewey, and S. A. Sipkin, A teleseismic analysis of the New Brunswick earthquake of January 9, 1982, *J. Geophys. Res.*, **88**, 2199-2212, 1983.
- Christensen, D. H., and L. J. Ruff, Outer-rise earthquakes and seismic coupling, *Geophys. Res. Lett.*, **10**, 697-700, 1983.
- Christensen, D. H., and L. J. Ruff, Rupture process of the March 3, 1985 Chilean earthquake, *Geophys. Res. Lett.*, **13**, 721-724, 1986.
- Christensen, N. I., The magnitude, symmetry and origin of upper mantle anisotropy based on fabric analyses of ultramafic tectonites, *Geophys. J. R. Astron. Soc.*, **76**, 89-111, 1984.
- Christensen, N. I., Pore pressure and oceanic crustal seismic structure, *Geophys. Res. Lett.*, **79**, 411-423, 1985.

- Christensen, N. I., The influence of pore pressure on oceanic crustal seismic velocities, *J. Geodyn.*, 5, 45-48, 1986.
- Christensen, N. I., and M. H. Salisbury, Lateral heterogeneity in the seismic structure of the oceanic crust inferred from velocity studies in the Bay of Islands ophiolite, Newfoundland, *Geophys. Res. Lett.*, 68, 675-688, 1982.
- Chung, W.-Y., Mode of strain release of three graben-associated earthquakes, *Tectonics*, 2, 379-398, 1983.
- Chung, Y., Radon variation at Arrowhead and Murrieta springs: continuous and discrete measurements, *Pageoph*, 122, 294-308, 1984/85.
- Cipar, J., K. Kadinsky-Cade, and J. C. Johnston, P and S wave structure of the White Mountains, Maine-New Hampshire (abs.), *Eos (Trans. Amer. Geophys. Un.)*, 66, 308, 1985.
- Clark, M. M., K. K. Harms, J. J. Lienkaemper, J. A. Perkins, M. J. Rymer, and R. V. Sharp, The May 2, 1983 earthquake at Coalinga, California: the search for surface faulting, in *The Coalinga Earthquake Sequence Commencing May 2, 1983*, pp. 8-11, U.S. Geol. Surv. Open-File Rep. 83-511, 1983.
- Clark, M. M., J. J. Lienkaemper, D. S. Harwood, K. R. Lajoie, J. C. Matti, J. A. Perkins, M. J. Rymer, A. M. Sarna-Wojcicki, R. V. Sharp, J. D. Sims, J. C. Tinsley, and J. I. Ziony, Preliminary slip-rate table for late Quaternary faults of California, *U.S. Geol. Surv. Open-File Rep. 84-106*, 5 pl., 12 pp., 1984.
- Clayton, R. W., and R. P. Comer, A tomographic analysis of mantle heterogeneities from body wave travel time data, *Eos (Trans. Amer. Geophys. Un.)*, 64, 776, 1983.
- Cline, M. W., R. A. Snag, and E. L. Timmerman, Regional deformation of the earth model for the Los Angeles region, California, *Tectonophysics*, 107, 279-314, 1984.
- Clowes, R. M., G. D. Spence, R. M. Ellis, and D. A. Waldron, Structure of the lithosphere in a young subduction zone: results from reflection and refraction studies, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 313-321, AGU Geodynamics Series, Washington, DC, 1986.
- Cluff, L. S., Firsthand experience of the M_5 8.1 earthquake that struck Mexico City on 19 September 1985, *Bull. Seismol. Soc. Am.*, 75, 1843-1846, 1985.
- Coats, D. A., and H. Kanamori, Semi-empirically derived long-period ground motions generated by great earthquakes, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 401-408, San Francisco, CA, 1984.
- Cochran, T. R., R. S. Norris, W. M. Arkin, and M. M. Hoenig, Unannounced U.S. nuclear weapons tests, 1980-1984, *NWD 86-1*, 11 pp., Natural Resources Defense Council, Washington, DC, 1986.
- Cockerham, R. S., Evidence for a 180-km-long subducted slab beneath northern California, *Bull. Seismol. Soc. Am.*, 74, 569-576, 1984.
- Cockerham, R. S., and J. P. Eaton, The April 24, 1984 Morgan Hill earthquake and its aftershocks: April 24 through September 30, 1984, in *The 1984 Morgan Hill, California Earthquake*, edited by J. H. Bennett and R. W. Sherburne, pp. 215-236, Special Publ. 68, Calif. Div. Mines and Geol., Sacramento, CA, 1984.
- Coffman, J. L., and S. Godeaux, Catalog of strong-motion accelerograph records, *Rep. SE-38*, 79 pp., World Data Center A for Solid Earth Geophys., Nat. Geophys. Data Cen., Boulder, Colo., 1985.
- Colburn, R., and W. D. Mooney, Two-dimensional velocity structure along the synclinal axis of the Great Valley, California, *Bull. Seismol. Soc. Am.*, 76, 1305-1322, 1986.
- Collins, J. A., D. E. Koelsch, and G. M. Purdy, Seismic reflection profiling with a deep-towed vertical hydrophone array, *Mar. Geophys. Res.*, 6, 415-431, 1984.
- Collins, J. A., T. M. Brocher, and J. A. Karson, Two-dimensional seismic reflection modeling of the inferred fossil oceanic crust/mantle transition in the Bay of Islands ophiolite, *J. Geophys. Res.*, in press, 1986.
- Colman, S. M., and K. Watson, Ages estimated from a diffusion equation model for scarp degradation, *Science*, 221, 263-265, 1983.
- Comer, R. P., Rapid seismic ray tracing in a spherically symmetric earth via interpolation of rays, *Bull. Seismol. Soc. Am.*, 74, 479-492, 1984.
- Comer, R. P., and R. W. Clayton, Reconstruction of mantle heterogeneity by iterative back-projection of travel times, I. Theory and reliability, *J. Geophys. Res.*, in press, 1986.
- Commission on Controlled-Source Seismology, Portable seismographic instrumentation, *Proc. of the International Workshop on Instrumentation*, 212 pp., Los Altos, CA, 1983.
- Committee on Armed Services, *Review of Arms Control and Disarmament Activities*, U.S.

- House of Representatives, Special Panel on Arms Control and Disarmament, *H.A.S.C. no. 99-18*, U.S. Gov't Printing Office, Washington, DC, 531 pp., 1986.
- Committee on Armed Services, *Nuclear Testing Issues*, U.S. Senate, *S.Hrg99-984*, U.S. Gov't Printing Office, 63-425-0, Washington, DC, 132 pp., 1987.
- Committee on Foreign Affairs, *Proposals to Ban Nuclear Testing*, Subcommittee on Arms Control, International Security and Science, U.S. House of Representatives, U.S. Gov't Printing Office, 47-128-0, Washington, DC, 1985.
- Committee on Foreign Relations, *Nuclear Testing Issues*, U.S. Senate, *S.Hrg99-937*, U.S. Gov't Printing Office, 64-695-0, Washington, DC, 313 pp., 1986.
- Committee on Opportunities for Research in the Geological Sciences, Opportunities for research in the geological sciences, *Board on Earth Sciences Report*, National Academy Press, Washington, DC, 1983.
- Committee on Seismology, Seismographic networks: problems and outlooks for the 1980s, *Board on Earth Sciences Report*, National Academy Press, Washington, DC, 1983.
- Committee on Seismology, Seismological studies of the continental lithosphere, *Board on Earth Sciences Report*, National Academy Press, Washington, DC, 1983.
- Converse, A. M., A. G. Brady, and W. B. Joyner, Improvements in strong-motion data processing procedures, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 143-148, San Francisco, CA, 1984.
- Cook, F. A., Comment and Reply on "Re-processed COCORP southern Appalachian reflection data: root zone to coastal plain," *Geology*, 12, 249-251, 1984.
- Cook, F. A., Geophysical anomalies along strike of the southern Appalachian Piedmont, *Tectonics*, 3, 45-61, 1984.
- Cook, F. A., Towards an understanding of the southern Appalachian Piedmont crustal transition—a multidisciplinary approach, *Tectonophysics*, 109, 77-92, 1984.
- Cook, F. A., Deep basement seismic reflection profiling of the Purcell anticlinorium using a land air gun source, *J. Geophys. Res.*, 90, 651-662, 1985.
- Cook, F. A., Geometry of the Kapuskasing structure from a lithoprobe pilot reflection survey, *Geology*, 13, 368-371, 1985.
- Cook, F. A., Continental evolution by lithospheric shingling, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 13-19, AGU Geodynamics Series, Washington, DC, 1986.
- Cooper, A. K., and F. J. Davey, Episodic rifting of Phanerozoic rocks in the Victoria land basin, western Ross Sea, Antarctica, *Science*, 229, 1085-1087, 1986.
- Coppersmith, K. J., and D. P. Schwartz, Introduction to the special section on fault behavior and the earthquake generation process, *J. Geophys. Res.*, 89, 5669-5673, 1984.
- Cormier, M. H., R. S. Detrick, and G. M. Purdy, Anomalously thin crust in oceanic fracture zones: new seismic constraints from the Kane fracture zone, *J. Geophys. Res.*, 89, 10249-10266, 1984.
- Cormier, V. F., The effect of attenuation on seismic body waves, *Bull. Seismol. Soc. Am.*, 72, S169-S200, 1982.
- Cormier, V. F., Deep earth structure, *Rev. Geophys.*, 21, 1277-1284, 1983.
- Cormier, V. F., The polarization of S waves in a heterogeneous isotropic earth model, *J. Geophys. Res.*, 56, 20-23, 1984.
- Cormier, V. F., Some problems with S, SKS, and ScS observations and implications for the structure of the base of the mantle and outer core, *J. Geophys. Res.*, 57, 14-22, 1985.
- Cormier, V. F., Synthesis of body waves in transversely isotropic earth models, *Bull. Seismol. Soc. Am.*, 76, 231-240, 1986.
- Cormier, V. F., and G. L. Choy, A search for lateral heterogeneity in the inner core from differential travel times near PKP-D and PKP-C, *Geophys. Res. Lett.*, 13, 1553-1556, 1986.
- Cormier, V. F., and P. Spudich, Amplification of ground motion and waveform complexity in fault zones: examples from the San Andreas and Calaveras faults, *Geophys. J. R. Astron. Soc.*, 79, 135-152, 1984.
- Cotton, W. R., Holocene paleoseismology of the San Gabriel fault Saugus/Castaic area Los Angeles County, California, in *Neotectonics and Faulting in Southern California*, compiled by P. L. Ehlig, pp. 33-41, *Cordilleran Sec., Geol. Soc. Am. Guidebook and Volume*, 1986.
- Coudert, E., R. K. Cardwell, B. L. Isacks, and Jean-Luc Chatelain, P-wave velocity of the uppermost mantle and crustal thickness in the central Vanuata Islands (New Hebrides Island arc), *Bull. Seismol. Soc. Am.*, 74, 913-924, 1984.
- Cox, C., T. Deaton, and S. Webb, A deep-sea differential pressure gauge, *J. Atmos. Oceanic Tech.*, 1, 237-246, 1984.

- Cramer, C. H., and A. F. Shakal, Discrepancies in strong motion and sensitive arrival time data for the M 6.7 Coalinga earthquake of 2 May 1983, in *The Coalinga, California Earthquakes*, edited by J. H. Bennett and R. W. Sherburne, pp. 307–319, *Special Publ. 66*, Calif. Div. Mines and Geol., Sacramento, CA, 1983.
- Crandell, G. J., B. P. Luyendyk, M. S. Reichle, and W. A. Prothero, A marine seismic refraction study of the Santa Barbara channel, *Mar. Geophys. Res.*, 6, 15–37, 1983.
- Cranswick, E., R. Wetmiller, and J. Boatwright, High-frequency observations and source parameters of microearthquakes recorded at hard-rock sites, *Bull. Seismol. Soc. Am.*, 75, 1537–1567, 1985.
- Creager, K. C., Geometry, velocity structure, and penetration depths of descending slabs in the western Pacific, Ph.D. thesis, Univ. of California, San Diego, CA, 1984.
- Creager, K. C., and T. H. Jordan, Slab penetration into the lower mantle, *J. Geophys. Res.*, 89, 3031–3049, 1984.
- Creager, K. C., and T. H. Jordan, Aspherical structure of the core-mantle boundary, from PKP travel times, *Geophys. Res. Lett.*, 13, 1497–1500, 1986.
- Creager, K. C., and T. H. Jordan, Slab penetration into the lower mantle beneath the Mariana and other island arcs of the northwest Pacific, *J. Geophys. Res.*, 91, 3573–3589, 1986.
- Crone, A. J., Amount of displacement and estimated age of a Holocene age surface faulting event, eastern Great basin, Millard County, Utah, *Spec. Stud. Utah Geol. Mineral Surv.*, 62, 49–55, 1983.
- Crone, A. J., and S. T. Harding, Relationship of late Quaternary fault scarps to subjacent faults, eastern Great basin, Utah, *Geology*, 12, 292–295, 1984.
- Crone, A. J., and M. N. Machette, Surface faulting accompanying the Borah Peak earthquake, central Idaho, *Geology*, 12, 664–667, 1984.
- Crone, A. J., M. N. Machette, M. G. Bonilla, J. J. Lienkaemper, K. L. Pierce, W. E. Scott, and R. C. Bucknam, Characteristics of surface faulting accompanying the Borah Peak earthquake, central Idaho, in *Proc. of Workshop XXVIII, On the Borah Peak, Idaho, Earthquake*, vol. A, edited by R. S. Stein and R. C. Bucknam, pp. 43–58, U.S. Geol. Surv. Open-File Rep. 85-290, 1985.
- Crone, A. J., F. A. McKeown, S. T. Harding, R. M. Hamilton, D. P. Russ, and M. D. Zoback, Structure of the New Madrid seismic source zone in southeastern Missouri and northeastern Arkansas, *Geology*, 13, 547–550, 1985.
- Crossley, D., Oscillatory flow in the liquid core, *Phys. Earth Planet. Inter.*, 36, 1–16, 1984.
- Crosson, R. S., Comment on “Geodetic strain measurements in Washington” by J. C. Savage, M. Lisowski, and W. H. Prescott, *J. Geophys. Res.*, 91, 7555–7557, 1986.
- Crosson, R. S., and D. A. Bame, A spherical source model for low frequency volcanic earthquakes, *J. Geophys. Res.*, 90, 10237–10247, 1985.
- Crosson, R. S., M. Martini, R. Scarpa, and S. C. Key, The southern Italy earthquake of 23 November 1980: an unusual pattern of faulting, *Bull. Seismol. Soc. Am.*, 76, 381–394, 1986.
- Crouse, C. B., and T. Matuschka, Digitization noise and accelerograph pen offset associated with Japanese accelerograms, *Bull. Seismol. Soc. Am.*, 73, 1187–1196, 1983.
- Crouse, C. B., G. C. Liang, and G. R. Martin, Amplification of earthquake motions recorded at an accelerograph station, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 55–62, San Francisco, CA, 1984.
- Crouse, C. B., G. C. Liang, and G. R. Martin, Experimental study of soil-structure interaction at an accelerograph station, *Bull. Seismol. Soc. Am.*, 74, 1995–2013, 1984.
- Crowell, J. C., Active tectonics along the western continental margin, in *Active Tectonics*, pp. 20–29, National Academy Press, Washington, DC, 1986.
- Cruz, G., and M. Wyss, Large earthquakes, mean sea level, and tsunamis along the Pacific coast of Mexico and Central America, *Bull. Seismol. Soc. Am.*, 73, 553–570, 1983.
- Cunningham, P. S., and S. W. Roecker, Three-dimensional P and S wave velocity structures of southern Peru and their tectonic implications, *J. Geophys. Res.*, 91, 9517–9532, 1986.
- Cunningham, P. S., S. W. Roecker, and D. Hatzfeld, Three-dimensional P and S wave structures of southern Peru and their tectonic implications, *J. Geophys. Res.*, 91, 9517–9532, 1986.
- Daggett, P. H., P. Morgan, F. K. Boulos, S. F. Hennin, A. A. El-Sherif, A. A. El-Sayed, N. Z. Basta, and Y. S. Melek, Seismicity and active tectonics of the Egyptian Red Sea margin and the northern Red Sea, *Tectonophysics*, 125, 313–324, 1986.
- Dahlen, F. A., and I. H. Henson, Asymptotic normal modes of a laterally heterogeneous

- earth, *J. Geophys. Res.*, **90**, 12653–12681, 1985.
- Dain, A. Y., Le, P. Tapponnier, and P. Molnar, Active faulting and tectonics of Burma and surrounding regions, *J. Geophys. Res.*, **89**, 453–472, 1984.
- Dainty, A. M., High-frequency backscattering and seismic attenuation, *J. Geophys. Res.*, **89**, 3172–3176, 1984.
- Das, S., A numerical method for determination of source time functions for general three-dimensional rupture propagation, *Geophys. J. R. Astron. Soc.*, **62**, 591–604, 1980.
- Das, S., Comparison of the radiated fields generated by the fracture of a circular crack and a circular asperity, *Geophys. J. R. Astron. Soc.*, **85**, 601–615, 1986.
- Das, S., and J. Boatwright, The breaking of a single asperity: analysis of an aftershock of the 1975 Oroville, California, earthquake, *Bull. Seismol. Soc. Am.*, **75**, 677–687, 1985.
- Das, S., and B. V. Kostrov, Breaking of a single asperity: rupture process and seismic radiation, *J. Geophys. Res.*, **88**, 4277–4288, 1983.
- Das, S., and B. V. Kostrov, An elliptical asperity in shear: fracture process and seismic radiation, *Geophys. J. R. Astron. Soc.*, **80**, 725–742, 1985.
- Das, S., and B. V. Kostrov, Fracture of a single asperity on a finite fault: a model for weak earthquakes, in *Earthquake Source Mechanics*, Maurice Ewing Ser., vol. 6, edited by S. Das et al., pp. 91–96, AGU, Washington, DC, 1986.
- Dashen, R., and W. Munk, Three models of global ocean noise, *J. Acoust. Soc. Am.*, **76**, 540–554, 1984.
- Davies, G. F., Geophysical and isotopic constraints on mantle convection: an interim synthesis, *J. Geophys. Res.*, **89**, 6017–6040, 1984.
- Davis, J. F., and P. Somerville, Comparison of earthquake prediction approaches in the Tokai area of Japan and in California, *Bull. Seismol. Soc. Am.*, **72**, S367–S392, 1982.
- Davis, J. P., Variation in apparent attenuation of the earth's normal modes due to lateral heterogeneity, *Geophys. Res. Lett.*, **12**, 141–144, 1985.
- Davis, J. P., Local eigenfrequency and its uncertainty inferred from fundamental spheroidal mode peak shifts, *Eos (Trans. Amer. Geophys. Un.)*, **67**, 306, 1986.
- Davis, J. P., and I. H. Henson, Validity of the great circular average approximation for inversion of normal mode measurements, *Geophys. J. R. Astron. Soc.*, **85**, 69–92, 1986.
- Davis, P. M., Surface deformation associated with a dipping hydrofracture, *J. Geophys. Res.*, **88**, 5826–5834, 1983.
- Davis, P. M., and M. J. S. Johnston, Localized geomagnetic field changes near active faults in California 1974–1980, *J. Geophys. Res.*, **88**, 9452–9460, 1983.
- Davis, P. M., E. C. Parker, J. R. Evans, H. M. Iyer, and K. H. Olsen, Teleseismic deep sounding of a broad low velocity zone beneath the Rio Grande rift (abs.), *Eos (Trans. Amer. Geophys. Un.)*, **64**, 752, 1983.
- Davis, P. M., E. C. Parker, J. R. Evans, H. M. Iyer, and K. H. Olsen, Teleseismic deep sounding of the velocity structure beneath the Rio Grande rift, in *New Mexico Geological Society Guidebook, 35th Field Conference—Rio Grande Rift, Northern New Mexico*, edited by W. C. Baldridge et al., pp. 29–38, Socorro, NM, 1984.
- Davison, F. C., Jr., and C. H. Scholz, Frequency-moment distribution of earthquakes in the Aleutian arc: a test of the characteristic earthquake model, *Bull. Seismol. Soc. Am.*, **75**, 1349–1361, 1985.
- Davison, F. C., M. C. Chapman, J. W. Munsey, and G. A. Bollinger, A note on the Cunningham, Virginia earthquake of August 17, 1984, in the central Virginia seismic zone, *Earthquake Notes*, **55**, 26–40, 1984.
- Day, S. M., and J. B. Minster, Numerical simulation of attenuated wavefields using a Padé approximant method, *Geophys. J. R. Astron. Soc.*, **78**, 105–118, 1984.
- Day, S. M., and J. L. Stevens, An explanation for apparent time delays in phase-reversed Rayleigh waves from underground nuclear explosions, *Geophys. Res. Lett.*, **13**, 1423–1425, 1986.
- Day, S. M., N. Rimer, and J. T. Cherry, Surface waves from underground explosions with Spall: analysis of elastic and nonlinear source models, *Bull. Seismol. Soc. Am.*, **73**, 247–264, 1983.
- Deaton, B. C., Time of sinistral slip along the Polochic fault of Guatemala, *Tectonophysics*, **102**, 297–314, 1984.
- Decker, R. W., Forecasting volcanic eruptions, *Ann. Rev. Earth Planet. Sci.*, **14**, 267–291, 1986.
- Decker, R. W., Dynamics of Hawaiian volcanoes: an overview, in *Volcanism in Hawaii*, edited by R. W. Decker et al., pp. 997–1018, U.S. Geol. Surv. Prof. Pap., **1350**, 2, 1987.

- Deemer, S., M. C. Humphreys, R. A. Johnson, S. B. Smithson, W. L. Ellsworth, and D. P. Hill, Structure of the Long Valley caldera interpreted from seismic reflection data (abs.), *Eos (Trans. Amer. Geophys. Un.)*, 66, 301, 1985.
- DeHerrera, M. A., and T. C. Zsutty, A study of the variability in k th peak ground motions in a geologically similar environment using accelerograms from the 1971 San Fernando earthquake, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 785-792, San Francisco, CA, 1984.
- Dehlinger, P., and B. A. Bolt, Seismic parameters along the Bartlett Springs fault zone in the Coast ranges of northern California, *Bull. Seismol. Soc. Am.*, 74, 1785-1798, 1984.
- Dehlinger, P., and B. A. Bolt, Jointly determined focal parameters along a fault in California's north Coast range, *Tectonophysics*, 118, 293-299, 1985.
- DelBalzo, D. R., J. E. Matthews, J. V. Soileau, and C. Feuillade, Acoustic propagation over large-scale linear ocean slopes, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 179-189, Plenum Press, NY, 1986.
- Department of Defense, DARPA/AFTAC nuclear monitoring seismic research review for FY85, *unpub. ms.*, 363 pp., 1985.
- Department of Defense, DARPA/AFTAC, Seismic research review for FY86, 6.2 program on 7-8 October 1986, *unpub. ms.*, 329 pp., 1986.
- Der, Z. A., Comments on 'P wave amplitudes in the United States: east-west variations and variability' by R. Butler, *Geophys. J. R. Astron. Soc.*, 81, 381-383, 1985.
- Der, Z. A., Comments on 'Estimation of scalar moments from explosion-generated surface waves' by J. L. Stevens, *Bull. Seismol. Soc. Am.*, 76, 1822-1824, 1986.
- Der, Z. A., and A. C. Lees, Methodologies for estimating $t^*(f)$ from short-period body waves and regional variations in $t^*(f)$ in the United States, *Geophys. J. R. Astron. Soc.*, 82, 125-140, 1985.
- Der, Z., T. McElfresh, and J. Burnetti, Spectral characteristics of P waves from nuclear explosions and yield estimation, *Bull. Seismol. Soc. Am.*, 69, 67-99, 1982.
- Der, Z. A., T. McElfresh, and A. O'Donnell, An investigation of the regional variations and frequency dependence of anelastic attenuation in the mantle under the United States in the 0.5-4 Hz band, *Geophys. J. R. Astron. Soc.*, 69, 67-99, 1982.
- Der, Z. A., W. D. Rivers, T. W. McElfresh, A. O'Donnell, P. J. Klouda, and M. E. Marshall, Worldwide variations in the attenuative properties of the upper mantle as determined from spectral studies of short-period body waves, *Phys. Earth Planet. Inter.*, 30, 12-25, 1982.
- Der, Z. A., T. W. McElfresh, R. Wagner, and A. O'Donnell, Global t^* measurements for the magnitude-yield experiment, *SDAC-TR-82-3*, Teledyne Geotech, Alexandria, VA, 1983.
- Der, Z. A., R. H. Shumway, L. M. Anderson, T. W. McElfresh, and J. A. Burnetti, Analyses of estimators for pP times and amplitudes, *Technical Report to the Defense Advanced Research Projects Agency*, *TGAL-TR-83-8*, 109 pp., 1984.
- Der, Z. A., A. C. Lees, L. M. Anderson, J. A. Burnetti, M. E. Marshall, T. W. McElfresh, and R. Wagner, Frequency dependence of Q in the mantle under shield areas of Eurasia, in *The VELA Program*, edited by A. Kerr, pp. 693-704, 1985.
- Der, Z. A., A. C. Lees, and M. E. Marshall, Frequency dependence of Q in the mantle underlying the tectonic areas of Eurasia and North America, *Annual Report to Defense Advanced Research Projects Agency*, *TGAL-85-13*, Teledyne-Geotech, Alexandria, Va, 51 pp., 1985.
- Der, Z., T. McElfresh, R. Wagner, and J. Burnetti, Spectral characteristics of P waves from nuclear explosions and yield estimation, *Bull. Seismol. Soc. Am.*, 75, 379-390, 1985.
- Der, Z. A., A. C. Lees, and V. F. Cormier, Frequency dependence of Q in the mantle underlying the shield areas of Eurasia, III, the Q model, *Geophys. J. R. Astron. Soc.*, *in press*, 1986.
- Der Kiureghian, A., and R. Araya, Source models and analysis of uncertainties in earthquake hazard assessment, in *Proc. of Conf. XXXIV. A Workshop on "Probabilistic Earthquake Hazards Assessments,"* edited by W. W. Hays, pp. 142-157, U.S. Geol. Surv. Open-File Rep. 86-185, 1986.
- Detrick, R. S., Marine multichannel seismology workshop, *Eos (Trans. Amer. Geophys. Un.)*, 65, 1246-1248, 1984.
- Detrick, R. S., and G. M. Purdy, The crustal structure of the Kane fracture zone from seismic refraction studies, *J. Geophys. Res.*, 85, 3759-3778, 1980.
- Detrick, R., P. Buhl, J. Mutter, J. Orcutt, T. Brocher, and J. Madsen, Multichannel seismic imaging of the axial magma chamber along the east Pacific rise between 9°N and 13°N,

- Eos (Trans. Amer. Geophys. Un.)*, 67, 360, 1986.
- de Voogd, B., L. D. Brown, and C. Merey, Nature of the eastern boundary of the Rio Grande rift from COCORP surveys in the Albuquerque basin, New Mexico, *J. Geophys. Res.*, 91, 6305-6320, 1986.
- de Voogd, B., L. Serpa, L. Brown, E. Hauser, S. Kaufman, J. Oliver, B. W. Troxel, J. Willemann, and L. A. Wright, Death Valley bright spot: a midcrustal magma body in the southern Great basin, California?, *Geology*, 14, 64-67, 1986.
- Dewey, J. W., Relocation of instrumentally recorded pre-1974 earthquakes in the South Carolina region, in *Studies Related to the Charleston, South Carolina, Earthquake of 1886—Tectonics and Seismicity*, edited by G. S. Gohn, pp. Q1-Q9, U.S. Geol. Surv. Prof. Pap. 1919, 1983.
- Dewey, J. W., Instrumental seismicity of central Idaho, in *Proc. of Workshop XXVIII. On the Borah Peak, Idaho, Earthquake*, vol. A, edited by R. S. Stein and R. C. Bucknam, pp. 264-284, U.S. Geol. Surv. Open-File Rep. 85-290, 1985.
- DeWitt, H. E., Debate on a comprehensive nuclear test ban: Pro., *Physics Today*, pp. 24, 30-34, August 1983.
- Diachock, O. I., R. L. Dicus, and S. C. Wales, Effects of upper crustal geoacoustic parameters on low frequency sound, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 711-720, Plenum Press, NY, 1982.
- Diachock, O. I., R. L. Dicus, and S. C. Wales, Elements of a geoacoustic model of the upper crust, *J. Acoust. Soc. Am.*, 75, 324-334, 1983.
- Diebold, J. B., P. L. Stoffa, and LASE Study Group, A large aperture seismic experiment in the Baltimore canyon trough, in *The Atlantic Continental Margin: U.S. Geol. Soc. of Am., The Geology of North America, I-2*, edited by R. E. Sheridan and J. A. Grow, *in press*, 1986.
- Dieterich, J. H., Assessment of a prototype earthquake prediction network for southern California, *U.S. Geol. Surv. Open-File Rep. 83-576*, 27 pp., 1983.
- Dieterich, J. H., A model for the nucleation of earthquake slip, in *Earthquake Source Mechanics, Maurice Ewing Ser.*, vol. 6, edited by S. Das et al., pp. 37-47, AGU, Washington, DC, 1986.
- Dokka, R. K., Displacements on late Cenozoic strike-slip faults of the central Mojave desert, California, *Geology*, 11, 305-308, 1983.
- Donahue, D. J., T. H. Zabel, A. J. T. Jull, P. E. Damon, and K. H. Purser, Results of tests and measurements from the NSF regional accelerator facility for radioisotope dating, *Radiocarbon*, 25, 719-728, 1983.
- Donovan, N., A practitioner's view of site effects on strong ground motion, in *Proc. of Conf. XXII, A Workshop on "Site-Specific Effects of Soil and Rock on Ground Motion and the Implications for Earthquake-Resistant Design,"* edited by W. W. Hays, pp. 68-79, U.S. Geol. Surv. Open-File Rep. 83-845, 1983.
- Donovan, N., Ground motion issues for base isolation, in *Proc. of a Seminar and Workshop on Base Isolation and Passive Energy Dissipation, ATC-17*, pp. 343-353, Applied Tech. Council, Redwood City, CA, 1986.
- Donovan, N. C., An alternate view of strong ground motion, in *Critical Aspects of Earthquake Ground Motion and Building Damage Potential, ATC-10-1*, pp. 53-56, Applied Tech. Council, Redwood City, CA, 1984.
- Doolittle, R., A. Tolstoy, and M. Buckingham, Experimental confirmation of horizontal refraction of sound propagation in a wedge-like ocean, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 169-178, Plenum Press, NY, 1986.
- Dorman, H. J., T. H. Crawford, J. W. Stelzig, and P. J. Tarantolo, Reassessing seismic refraction of the Edwards plateau, in *Reflection Seismology: A Global Perspective*, vol. 13, edited by M. Barazangi and L. Brown, pp. 273-280, AGU Geodynamics Series, Washington, DC, 1986.
- Dorman, L. M., and R. S. Jacobson, Linear inversion of body wave traveltimes data, *Geophysics*, 46, 138-151, 1981.
- Doser, D. I., Source parameters and faulting processes of the 1959 Hebgen Lake, Montana, earthquake sequence, *J. Geophys. Res.*, 90, 4537-4555, 1985.
- Doser, D. I., The 1983 Borah Peak, Idaho and 1959 Hebgen Lake, Montana earthquakes: models for normal fault earthquakes in the intermountain seismic belt, in *Proc. of Workshop XXVIII. On the Borah Peak, Idaho, Earthquake*, vol. A, edited by R. S. Stein and R. C. Bucknam, pp. 368-384, U.S. Geol. Surv. Open-File Rep. 85-290, 1985.
- Doser, D. I., Earthquake processes in the Rainbow Mountain-Fairview Peak-Dixie Valley, Nevada, region (1954-1959), *J. Geophys. Res.*, 91, 12572-12586, 1986.

- Doser, D. I., and H. Kanamori, Depth of seismicity in the Imperial Valley region (1977-1983) and its relationship to heat flow, crustal structure, and the October 15, 1979, earthquake, *J. Geophys. Res.*, **91**, 675-688, 1986.
- Doser, D. I., and H. Kanamori, Spatial and temporal variations in seismicity in the Imperial Valley (1902-1984), *Bull. Seismol. Soc. Am.*, **76**, 421-438, 1986.
- Doser, D. I., and R. B. Smith, Seismicity of the Teton-southern Yellowstone region, Wyoming, *Bull. Seismol. Soc. Am.*, **73**, 1369-1394, 1983.
- Doser, D. I., and R. B. Smith, Source parameters of the 28 October 1983 Borah Peak, Idaho, earthquake from body wave analysis, *Bull. Seismol. Soc. Am.*, **75**, 1041-1051, 1985.
- Dravinski, M., Amplification of *P*, *SV*, and Rayleigh waves by two alluvial valleys, *Soil Dynamics and Earthquake Engin.*, **2**, 66-77, 1983.
- Dravinski, M., Ground motion amplification due to elastic inclusions in a half-space, *Earthquake Engin. and Structural Dynamics*, **11**, 313-335, 1983.
- Dravinski, M., Scattering of plane harmonic *SH* wave by dipping layers of arbitrary shape, *Bull. Seismol. Soc. Am.*, **73**, 1303-1319, 1983.
- Dravinski, M., Strong ground motion in the Los Angeles basin: incident *SH* waves, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 647-654, San Francisco, CA, 1984.
- Draviniski, M., H. Eshraghi, and F. J. Sabina, Scattering of *SH* waves by an alluvial valley of arbitrary shape: a boundary integral approach, in *Proc. of 3rd U.S. Nat. Conf. on Earthquake Engin.*, vol. 1, pp. 417-426, Charleston, SC, 1986.
- Duckworth, G. L., and A. B. Baggeroer, Inversion of refraction data from the Fram and Nansen basins of the Arctic ocean, *Tectonophysics*, **114**, 55-102, 1985.
- Duckworth, G. L., and A. B. Baggeroer, Estimation of ice surface scattering and acoustic attenuation in Arctic sediments from long-range propagation data, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 373-386, Plenum Press, NY, 1986.
- Duckworth, G. L., A. B. Baggeroer, and H. R. Jackson, Crustal structure measurements near Fram II in the Pole abyssal plain, *Tectonophysics*, **89**, 173-215, 1982.
- Duennebier, F. K., The 26 May 1983 Japan earthquake recorded by OSS IV, *Initial Reports of the Deep Sea Drilling Project*, **88**, in press, 1986.
- Duennebier, F. K., and P. N. Anderson, Azimuth determination of and from horizontal ocean bottom seismic sensors, *J. Geophys. Res.*, **88**, in press, 1986.
- Duennebier, F. K., and G. Blackington, The ocean subbottom seismometer, in *Geophysical Exploration at Sea*, edited by R. Geyer, pp. 317-332, CRC Press, Boca Raton, FL, 1983.
- Duennebier, F. K., R. K. Cessaro, and P. Anderson, Geo-acoustic noise levels in a deep ocean borehole, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 743-751, Plenum Press, NY, 1986.
- Duennebier, F. K., R. K. Cessaro, and D. Harris, Temperature and tilt variation measured for 64 days in Hole 581C, *Initial Reports of the Deep Sea Drilling Project*, in press, 1986.
- Duennebier, F. K., B. Leinert, R. K. Cessaro, P. N. Anderson, and S. Mallick, Controlled-source seismic experiment at Hole 581C, *Initial Reports of the Deep Sea Drilling Project*, **88**, in press, 1986.
- Duennebier, F. K., C. McCreery, D. Harris, R. Cessaro, C. Fisher, and P. Anderson, OSS IV: noise levels, noise sources and signal to noise, *Initial Reports of the Deep Sea Drilling Project*, in press, 1986.
- Duennebier, F. K., R. Stephen, and J. F. Gettrust, Site 581: downhole seismometer experiment in the northwest Pacific, *Initial Reports of the Deep Sea Drilling Project*, in press, 1986.
- Dvorak, J. J., A. T. Okamura, T. T. English, R. Y. Koyanagi, J. S. Nakata, M. K. Sako, W. T. Tanigawa, and K. M. Yamashita, Mechanical response of the south flank of Kilauea volcano, Hawaii, to intrusive events along the rift systems, *Tectonophysics*, **124**, 193-209, 1986.
- Dwyer, J. J., R. B. Herrmann, and O. W. Nuttli, Spatial attenuation of the *Lg* wave in the central United States, *Bull. Seismol. Soc. Am.*, **73**, 781-796, 1983.
- Dysart, P. S., C. Coruh, and J. K. Costain, Seismic response of major regional unconformities in Atlantic coastal plain sediments at Smith point, Virginia, *Geol. Soc. Am. Bull.*, **94**, 305-311, 1983.
- Dziewonski, A. M., Mapping the lower mantle: determination of lateral heterogeneity in *P* velocity up to degree and order 6, *J. Geophys. Res.*, **89**, 5929-5952, 1984.
- Dziewonski, A. M., and D. L. Anderson, Travel times and station corrections for *P* waves at teleseismic distances, *J. Geophys. Res.*, **88**, 3295-3314, 1983.

- Dziewonski, A. M., and D. L. Anderson, Seismic tomography of the earth's interior, *Am. Sci.*, **72**, 483-494, 1984.
- Dziewonski, A. M., and B. A. Romanowicz, Toward a federation of broad band seismic networks, *Eos (Trans. Amer. Geophys. Un.)*, **67**, 541, 1986.
- Dziewonski, A. M., and J. M. Stein, Dispersion and attenuation of mantle waves through waveform inversion, *Geophys. J. R. Astron. Soc.*, **70**, 503-527, 1982.
- Dziewonski, A. M., and J. H. Woodhouse, An experiment in systematic study of global seismicity: centroid-moment tensor solutions for 201 moderate and large earthquakes of 1981, *J. Geophys. Res.*, **88**, 3247-3271, 1983.
- Dziewonski, A. M., and J. Woodhouse, Study of the seismic source using normal mode theory, in *Earthquakes: Observation, Theory, and Interpretation, Proc. Intn'l. School Phys. LXXXV*, edited by H. Kanamori and E. Boschi, pp. 45-137, North-Holland, Amsterdam, NY, 1983.
- Dziewonski, A. M., A. Friedman, D. Giardini, and J. H. Woodhouse, Global seismicity of 1982: centroid moment tensor solutions for 308 earthquakes, *Phys. Earth Planet. Inter.*, **33**, 76-90, 1983.
- Dziewonski, A. M., J. E. Faranzen, and J. H. Woodhouse, Centroid-moment tensor solutions for January-March 1984, *Phys. Earth Planet. Inter.*, **34**, 209-220, 1984.
- Dziewonski, A. M., J. E. Faranzen, and J. H. Woodhouse, Centroid-moment tensor solutions for July-September 1985, *Phys. Earth Planet. Inter.*, **42**, 205-214, 1986.
- Dziewonski, A. M., J. E. Faranzen, and J. H. Woodhouse, Centroid-moment tensor solutions for October-December 1985, *Phys. Earth Planet. Inter.*, **43**, 185-195, 1986.
- Earthquake Notes, Abstracts for Symposium on the Meers fault, **55**, 1-3, 1985.
- Eaton, J. P., Seismic setting, location, and focal mechanism of the May 2, 1983, Coalinga earthquake, in *The Coalinga Earthquake Sequence Commencing May 2, 1983*, pp. 20-26, U.S. Geol. Surv. Open-File Rep. **83-511**, 1983.
- Eaton, J., Location, focal mechanism, and magnitude of the Morgan Hill earthquake derived from CALNET records, in *The Morgan Hill, California Earthquake of April 24, 1984 (A Preliminary Report)*, vol. 1, pp. 10-17, U.S. Geol. Surv. Open-File Rep. **84-498A**, 1984.
- Eaton, J. P., Regional seismic background of the May 2, 1983 Coalinga earthquake, in *Proc. of Workshop XXVII, Mechanics of the May 2, 1983 Coalinga Earthquake*, edited by M. J. Rymer and W. L. Ellsworth, pp. 44-60, U.S. Geol. Surv. Open-File Rep. **85-44**, 1985.
- Eaton, J. P., The May 2, 1983 Coalinga earthquake and its aftershocks: a detailed study of the hypocenter distribution and of the focal mechanisms of the larger aftershocks, in *Proc. of Workshop XXVII, Mechanics of the May 2, 1983 Coalinga Earthquake*, edited by M. J. Rymer and W. L. Ellsworth, pp. 132-201, U.S. Geol. Surv. Open-File Rep. **85-44**, 1985.
- Eaton, J. P., The May 2, 1983, Coalinga earthquake and its aftershocks: a detailed study of the hypocenter distribution and of the focal mechanisms of the larger aftershocks, *U.S. Geol. Surv. Prof. Pap.*, in press, 1986.
- Eaton, J. P., and M. J. Rymer, Regional seismic background of the May 2, 1983, Coalinga earthquake, *U.S. Geol. Surv. Prof. Pap.*, in press, 1986.
- Eaton, J., R. Cockerham, and F. Lester, Study of the May 2, 1983 Coalinga earthquake and its aftershocks, based on the USGS seismic network in northern California, in *The 1983 Coalinga, California Earthquakes*, edited by J. H. Bennett and R. W. Sherburne, pp. 261-273, Special Publ. **66**, Calif. Div. Mines and Geol., Sacramento, CA, 1983.
- Ebel, J. E., A detailed study of the aftershocks of the 1979 earthquake near Bath, Maine, *Earthquake Notes*, **54**, 27-40, 1983.
- Ebel, J. E., Statistical aspects of New England seismicity from 1975 to 1982 and implications for past and future earthquake activity, *Bull. Seismol. Soc. Am.*, **74**, 1311-1330, 1984.
- Ebel, J. E., and J. P. McCaffrey, Hypocentral parameters and focal mechanisms of the 1983 earthquake near Dixfield, Maine, *Earthquake Notes*, **55**, 21-24, 1984.
- Ebel, J. E., P. G. Sommerville, and J. D. McIver, A study of source parameters of some large earthquakes of northeastern North America, *J. Geophys. Res.*, **91**, 8231-8248, 1986.
- Eberhart-Phillips, D., Three-dimensional velocity structure in northern California Coast ranges from inversion of local earthquake arrival times, *Bull. Seismol. Soc. Am.*, **76**, 1025-1052, 1986.
- Eberhart-Phillips, D., and D. H. Oppenheimer, Induced seismicity in the Geysers geothermal area, California, *J. Geophys. Res.*, **89**, 1191-1207, 1984.
- Eberhart-Phillips, D., and P. Reasenberg, Hypocenter locations and constrained fault-plane solutions for Coalinga aftershocks, May

- 2-24, 1983: evidence for a complex rupture geometry, in *Proc. of Workshop XXVII, Mechanics of the May 2, 1983 Coalinga Earthquake*, edited by M. J. Ryner and W. L. Ellsworth, pp. 202-224, U.S. Geol. Surv. Open-File Rep. 85-44, 1985.
- Eberhart-Phillips, D., and P. Reasenberg, Complex faulting structure inferred from local seismic observations of $M > 1.0$ aftershocks, May 2-June 30, U.S. Geol. Surv. Prof. Pap., in press, 1986.
- Eissler, H. K., and H. Kanamori, Depth estimates of large earthquakes on the Island of Hawaii since 1940, *J. Geophys. Res.*, 91, 2063-2076, 1986.
- Eissler, H. K., and K. C. McNally, Seismicity and tectonics of the Rivera plate and implications for the 1932 Jalisco, Mexico, earthquake, *J. Geophys. Res.*, 89, 4520-4530, 1984.
- Eissler, H., L. Astiz, and H. Kanamori, Tectonic setting and source parameters of the September 19, 1985 Michoacan, Mexico, earthquake, *Geophys. Res. Lett.*, 13, 569-572, 1986.
- Eittreim, S. L., M. A. Hampton, and J. R. Childs, Seismic-reflection signature of Cretaceous continental breakup on the Wilkes land margin, Antarctica, *Science*, 229, 1082-1084, 1986.
- Ekström, G., Centroid-moment tensor solution for the April 24, 1984 Morgan Hill, California, earthquake, in *The 1984 Morgan Hill, California Earthquake*, edited by J. H. Bennett and R. W. Sherburne, pp. 209-213, Special Publ. 68, Calif. Div. Mines and Geol., Sacramento, CA, 1984.
- Ekström, G., and A. M. Dziewonski, Centroid-moment tensor solutions for 35 earthquakes in Western North America (1977-1983), *Bull. Seismol. Soc. Am.*, 75, 23-29, 1985.
- Ekström, G., and A. M. Dziewonski, A very broad band analysis of the Michoacan, Mexico, earthquake of September 19, 1985, *Geophys. Res. Lett.*, 13, 605-608, 1986.
- Ekström, G., A. M. Dziewonski, and J. M. Stein, Single station CMT: application to the Michoacan, Mexico, earthquake of September 19, 1985, *Geophys. Res. Lett.*, 13, 173-176, 1986.
- Elbring, G. J., and J. B. Rundle, Analysis of borehole seismograms from Long Valley, California: implications for caldera structure, *J. Geophys. Res.*, 91, 12651-12660, 1986.
- Eldholm, O., and J. C. Mutter, Basin structure on the Norwegian margin from analysis of digitally recorded sonobuoys, *J. Geophys. Res.*, 91, 3763-3783, 1986.
- Ellis, R. M., G. D. Spence, R. M. Clowes, D. A. Waldron, I. F. Jones, A. G. Green, D. A. Forsyth, J. A. Mair, M. J. Berry, R. F. Mereu, E. R. Kanasewich, G. L. Cumming, Z. Hajnal, R. D. Hyndman, G. A. McMechan, and B. D. Loncarevic, The Vancouver Island seismic project: a CO-CRUST onshore-offshore study of a convergent margin, *Canadian J. of Earth Sci.*, 20, 719-741, 1983.
- Ellis, S. P., An optimal statistical decision rule for calling earthquake alerts, *Earthq. Pred. Res.*, 3, 1-10, 1985.
- Elton, D. J., and J. R. Martin, II, Site period study for Charleston, S.C., in *Proc. of 3rd U.S. Nat. Conf. on Earthquake Engin.*, vol. 1, pp. 497-504, Charleston, SC, 1986.
- Engdahl, E. R., and S. Billington, Focal depth determination of central Aleutian earthquakes, *Bull. Seismol. Soc. Am.*, 76, 77-94, 1986.
- Engelder, T., Is there a genetic relationship between selected regional joints and contemporary stress within the lithosphere of North America?, *Tectonics*, 2, 161-178, 1982.
- Engeln, J. F., and S. Stein, Tectonics of the Easter plate, *Earth Planet. Sci. Lett.*, 68, 259-270, 1984.
- Engeln, J. F., D. A. Wiens, and S. Stein, Mechanisms and depths of Atlantic transform earthquakes, *J. Geophys. Res.*, 91, 548-577, 1986.
- Erksine, F. T., E. R. Franchi, and B. B. Adams, Seamount height estimation from long-range, low frequency acoustic backscatter, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 335-344, Plenum Press, NY, 1986.
- Ervin, C. P., L. D. McGinnis, R. M. Otis, and M. L. Hall, Automated analysis of marine refraction data: a computer algorithm, *Geophysics*, 48, 582-589, 1983.
- Estey, L. H., and B. J. Douglas, Upper mantle anisotropy: a preliminary model, *J. Geophys. Res.*, 91, 11393-11406, 1986.
- Evernden, J. F., Earthquake prediction: what have we learned and what should we do now?, *Bull. Seismol. Soc. Am.*, 72, S343-S349, 1982.
- Evernden, J. F., Politics, technology, and the test ban, *Bull. Atomic Sci.*, pp. 9-11, March 1985.
- Evernden, J. F., Verification of nuclear testing, *Science*, 228, 792-794, 1985.
- Evernden, J. F. and C. B. Archambeau, Some seismological aspects of monitoring a CTBT, in *Arms Control Verification*, edited by K.

- Tsipis et al., pp. 223-263, Pergamon Press, NY, 1986.
- Evernden, J. F., and L. R. Sykes, Nuclear test yields, *Science*, 223, 642-643, 1984.
- Evernden, J. F., and J. M. Thomson, Predicting seismic intensities, in *Evaluating Earthquake Hazards in the Los Angeles Region—An Earth-Science Perspective*, edited by J. I. Ziony, pp. 151-202, U.S. Geol. Surv. Prof. Pap. 1960, 1985.
- Evernden, J. F., C. B. Archambeau, and E. Cranswick, An evaluation of seismic decoupling and underground nuclear test monitoring using high-frequency seismic data, *Rev. Geophys.*, 24, 143-215, 1986.
- Eyidogan, H., and J. Jackson, A seismological study of normal faulting in the Demirci, Alasehir and Gediz earthquakes of 1969-70 in western Turkey: implications for the nature and geometry of deformation in the continental crust, *Geophys. J. R. Astron. Soc.*, 81, 569-608, 1985.
- Eyidogan, H., J. Nábělek, and M. N. Taksoz, The Gazli, USSR, 19 March 1984 earthquake: the mechanism and tectonic implications, *Bull. Seismol. Soc. Am.*, 75, 661-675, 1985.
- Fagot, M. G., Development of a deep-towed seismic system; a new capability for deep-ocean acoustic measurements, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 853-862, Plenum Press, NY, 1986.
- Farrell, W. E., J. L. Stevens, J. M. Savino, R. Shkoller, and L. B. Bache, Surface wave path corrections, deterministic discrimination and body wave attenuation, *Semiannual Technical Report to VELA Seismological Center, VSC-TR-83-12*, 170 pp., 1982.
- Fedock, J. J., Analysis of strong-motion earthquake records from a well-instrumented earth dam, in *Proc. of 3rd U.S. Nat. Conf. on Earthquake Engin.*, vol. 1, pp. 729-740, Charleston, SC, 1986.
- Fehler, M., Observations of volcanic tremor at Mount St. Helens volcano, *J. Geophys. Res.*, 88, 3476-3484, 1983.
- Fehler, M., Locations and spectral properties of earthquakes accompanying an eruption of Mount St. Helens, *J. Geophys. Res.*, 90, 12729-12740, 1985.
- Feng, C.-C., and T.-L. Teng, Three-dimensional crust and upper mantle structure of the Eurasian continent, *J. Geophys. Res.*, 88, 2261-2272, 1983.
- Feng, R., and T. V. McEvilly, Interpretation of seismic reflection profiling data for the structure of the San Andreas fault zone, *Bull. Seismol. Soc. Am.*, 73, 1701-1720, 1983.
- Fielding, E., M. Barazangi, L. Brown, J. Oliver, and S. Kaufman, COCORP seismic profiles near Coalinga, California: subsurface structure of the western Great Valley, *Geology*, 12, 268-273, 1984.
- Fischer, K. M., and W. McCann, Velocity modeling and earthquake relocation in the northeast Caribbean, *Bull. Seismol. Soc. Am.*, 74, 1249-1262, 1984.
- Fischer, K. M., K. C. Creager, and T. H. Jordan, Mapping the Tonga slab, *Eos (Trans. Amer. Geophys. Un.)*, 67, 381, 1986.
- Fisher, M. A., R. von Huene, G. L. Smith, and T. R. Bruns, Possible seismic reflections from the downgoing Pacific plate, 275 kilometers arcward from the eastern Aleutian trench, *J. Geophys. Res.*, 88, 5835-5849, 1983.
- Fishman, L., and S. C. Wales, Factorization and path integration of the Helmholtz equation: numerical algorithms, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 29-38, Plenum Press, NY, 1986.
- Fleischer, R. L., and A. Mogro-Campero, Association of subsurface radon changes in Alaska and the northeastern United States with earthquakes, *Geochimica et Cosmochimica Acta*, 49, 1061-1071, 1985.
- Fletcher, J. B., J. Boatwright, and W. B. Joyner, Depth dependence of source parameters at Monticello, South Carolina, *Bull. Seismol. Soc. Am.*, 73, 1735-1751, 1983.
- Fletcher, J., J. Boatwright, L. Haar, T. Hanks, and A. McGarr, Source parameters for aftershocks of the Oroville, California, earthquake, *Bull. Seismol. Soc. Am.*, 74, 1101-1123, 1984.
- Fletcher, J., L. Haar, T. C. Hanks, F. Vernon, J. Berger, and J. Brune, Seismicity and source parameters from the digital array at Anza, California, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 215-221, San Francisco, CA, 1984.
- Fletcher, J. B., L. C. Haar, F. L. Vernon, J. N. Brune, T. C. Hanks, and J. Berger, The effects of attenuation on the scaling of source parameters for earthquakes at Anza, California, in *Earthquake Source Mechanics, Maurice Ewing Ser.*, vol. 6, edited by S. Das et al., pp. 331-338, AGU, Washington, DC, 1986.
- Forsyth, D. W., Seismicity, focal mechanisms, and tectonics, *Rev. Geophys.*, 21, 1285-1290, 1983.
- Forsythe, R., and E. Nelson, Geologic manifestations of ridge collision: evidence from the Golfo De Penastaito basin, southern Chile, *Tectonics*, 4, 477-495, 1985.

- Fountain, D. M., Implications of deep crustal evolution for seismic reflection interpretation, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 1-7, AGU Geodynamics Series, Washington, DC, 1986.
- Fountain, D. M., C. A. Hurich, and S. B. Smithson, Seismic reflectivity of mylonite zones in the crust, *Geology*, 12, 195-198, 1984.
- Francheteau, J., and R. D. Ballard, The east Pacific rise near 21°N, 13°N and 20°S: inferences for along-strike variability of axial processes of the mid-ocean ridge, *Earth Planet Sci. Lett.*, 64, 93-116, 1983.
- Frankel, A., Precursors to a magnitude 4.8 earthquake in the Virgin Islands: spatial clustering of small earthquakes, anomalous focal mechanisms, and earthquake doublets, *Bull. Seismol. Soc. Am.*, 72, 1227-1294, 1982.
- Frankel, A., Source parameters of two $M_L \sim 5$ earthquakes near Anza, California, and a comparison with an Imperial Valley aftershock, *Bull. Seismol. Soc. Am.*, 74, 1509-1527, 1984.
- Frankel, A., and R. W. Clayton, A finite-difference simulation of wave propagation in two-dimensional random media, *Bull. Seismol. Soc. Am.*, 74, 2167-2186, 1984.
- Frankel, A., and R. W. Clayton, Finite difference simulations of seismic scattering: implications for the propagation of short-period seismic waves in the crust and models of crustal heterogeneity, *J. Geophys. Res.*, 91, 6465-6489, 1986.
- Frankel, A., and H. Kanamori, Determination of rupture duration and stress drop for earthquakes in southern California, *Bull. Seismol. Soc. Am.*, 73, 1527-1551, 1983.
- Frankel, A., J. Fletcher, F. Vernon, L. Haar, J. Berger, T. Hanks, and J. Brune, Rupture characteristics and tomographic source imaging of $M_L \sim 3$ earthquakes near Anza, southern California, *J. Geophys. Res.*, 91, 12633-12650, 1986.
- Frazer, L. N., Two problems in spectral WKBJ theory: the interpolation of sampled velocity profiles and the use of frequency-dependent, complex velocities, *Geophys. J. R. Astron. Soc.*, 72, 193-211, 1983.
- Frazer, L. N., A theory for the direct inversion of multi-offset VSP data in a stratified anisotropic medium, *Geophysics*, in press, 1986.
- Frazer, L. N., Synthetic seismograms using multi-fold path integrals, Part I: Theory, *Geophys. J. R. Astron. Soc.*, in press, 1986.
- Frazer, L. N., and D. L. Bates, Unconditionally stable reflectivity calculations, in *Acoustics and the Sea-Bed*, edited by G. D. Pace, pp. 139-145, Bath Univ. Press, Claverton Down, England, 1983.
- Frazer, L. N., and J. G. Gettrust, The generalized Filon method and its use in the computation of synthetic seismograms, *Geophys. J. R. Astron. Soc.*, 76, 461-481, 1984.
- Frazer, L. N., and J. J. McCoy, An acoustic reflectivity method for laterally varying media, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 47-55, Plenum Press, NY, 1986.
- Frazer, L. N., and M. K. Sen, Kirchhoff-Helmholtz reflection seismograms in a laterally inhomogeneous multi-layered elastic medium—I. Theory, *Geophys. J. R. Astron. Soc.*, 80, 121-147, 1985.
- Frazer, L. N., and J. B. Sinton, A Kirchhoff method for the computation of finite-frequency body wave synthetic seismograms in a laterally inhomogeneous medium, *Geophys. J. R. Astron. Soc.*, 78, 691-710, 1984.
- Friedlander, S., Internal oscillations in the earth's fluid core, *Geophys. J. R. Astron. Soc.*, 80, 345-361, 1985.
- Frisk, G. V., J. F. Lynch, and J. A. Doutt, The determination of geoacoustic models in shallow water, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 693-702, Plenum Press, NY, 1986.
- Frohlich, C., and S. Davis, Identification of aftershocks of deep earthquakes by a new ratios method, *Geophys. Res. Lett.*, 12, 713-716, 1985.
- Froidevaux, C., Basin and Range large-scale tectonics: constraints from gravity and reflection seismology, *J. Geophys. Res.*, 91, 3625-3632, 1986.
- Froidevaux, C., and B. L. Isacks, The mechanical state of the lithosphere in the Altiplano-Puna segment of the Andes, *Earth Planet. Sci. Lett.*, 71, 305-314, 1984.
- Frost, E. G., and D. A. Okaya, Geometry of detachment faults in the Old Woman-Turtle-Sacramento-Chemehuevi Mountains region of SE California (abs.), *Eos (Trans. Amer. Geophys. Un.)*, 66, 978, 1985.
- Fryer, G. J., and L. N. Frazer, Seismic waves in stratified anisotropic media, *Geophys. J. R. Astron. Soc.*, 78, 691-710, 1984.
- Fryer, G. J., and D. J. Miller, Effects and consequences of transverse isotropy in the seafloor, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 589-597, Plenum Press, NY, 1986.

- Fryklund, V. C., Jr., Salt deposits of the U.S.S.R.: possible accommodation of large decoupling cavities, prepared for Office of International Security Affairs, U.S. Dept. of Energy, R&D Assoc., *RDA-TR-122132-001*, Arlington, VA, 80 pp., 1984.
- Fuchs, K., and G. Müller, Computation of synthetic seismograms with the reflectivity method and comparison with observations, *Geophys. J. R. Astron. Soc.*, **23**, 417-433, 1971.
- Fuis, G. S., and E. L. Ambos, Deep structure of the Contact fault and Prince William terrane: preliminary results of the 1985 TACT seismic-refraction survey, in *The U.S. Geological Survey in Alaska—Accomplishments during 1985*, edited by S. Bartsch-Winkler, pp. 41-45, *U.S. Geol. Surv. Circular*, **978**, 1986.
- Fuis, G. S., W. D. Mooney, J. H. Healy, G. A. McMechan, and W. J. Lutter, A seismic refraction survey of the Imperial Valley region, California, *J. Geophys. Res.*, **89**, 1165-1189, 1984.
- Fuis, G. S., E. L. Ambos, W. D. Mooney, R. A. Page, and D. L. Campbell, Preliminary results of TACT 1984 seismic refraction survey of southern Alaska, in *The U.S. Geological Survey in Alaska—Accomplishments During 1984*, edited by S. Bartsch-Winkler, pp. 56-60, *U.S. Geol. Surv. Circular*, **967**, 1985.
- Fuis, G. S., J. J. Zucca, W. D. Mooney, and B. Milkereit, A geological interpretation of seismic-refraction results in northeastern California, *Geol. Soc. Am. Bull.*, **98**, 53-65, 1987.
- Fuller, D. R., and C. R. Real, High-angle reverse faulting, a model for the 2 May 1983 Coalinga earthquake, in *The 1983 Coalinga, California Earthquakes*, edited by J. H. Bennett and R. W. Sherburne, pp. 177-184, *Special Publ. 66*, Calif. Div. Mines and Geol., Sacramento, CA, 1983.
- Fumal, T. E., and J. C. Tinsley, Mapping shear-wave velocities of near-surface geologic materials, in *Evaluating Earthquake Hazards in the Los Angeles Region—An Earth-Science Perspective*, edited by J. I. Ziony, pp. 127-149, *U.S. Geol. Surv. Prof. Pap. 1960*, 1985.
- Fumal, T. E., J. F. Gibbs, and E. F. Roth, *in situ* measurements of seismic velocity at 16 locations in the Los Angeles, California region, *U.S. Geol. Surv. Open-File Rep. 84-681*, 109 pp., 1983.
- Fumal, T. E., J. F. Gibbs, and E. F. Roth, Near-surface geology and seismic wave velocities at six strong-motion stations near Gilroy, California, in *The 1984 Morgan Hill, California Earthquake*, edited by J. H. Bennett and R. W. Sherburne, pp. 183-190, *Special Publ. 68*, Calif. Div. Mines and Geol., Sacramento, CA, 1984.
- Furlong, K. P., Lithospheric behavior with triple junction migration: an example based on the Mendocino triple junction, *Phys. Earth Planet. Inter.*, **36**, 213-223, 1984.
- Furlong, K. P., and D. M. Fountain, Continental crustal underplating: thermal considerations and seismic-petrologic consequences, *J. Geophys. Res.*, **91**, 8285-8294, 1986.
- Gaffney, F. J., Testimony before the Special Panel on Arms Control and Disarmament of the House Armed Services Committee, *Congressional Record*, May 8, 1985.
- Galehouse, J. S., and B. D. Brown, Southeastern limit of surface displacement on the Calaveras fault associated with the 24 April 1984 Morgan Hill earthquake, in *The Morgan Hill, California Earthquake of April 24, 1984 (A Preliminary Report)*, vol. 1, pp. 85-91, *U.S. Geol. Surv. Open-File Rep. 84-498A*, 1984.
- Gamboa, L. A., R. T. Buffler, and P. F. Barker, Seismic stratigraphy and geologic history of the Rio Grande gap and southern Brazel basin, *Initial Reports of the Deep Sea Drilling Project*, **72**, 481-497, 1983.
- Gans, P. B., E. L. Miller, J. McCarthy, and M. L. Ouldcott, Tertiary extensional faulting and evolving ductile-brittle transition zones in the northern Snake range and vicinity: new insights from seismic data, *Geology*, **13**, 189-193, 1985.
- Garmann, J., Some properties of elastodynamic eigensolutions in stratified media, *Geophys. Res. Lett.*, **75**, 565-569, 1983.
- Garmann, J. D., The recovery of true particle motion from three component ocean bottom seismometer data, *J. Geophys. Res.*, **89**, 9245-9252, 1984.
- Gedney, L., Stress trajectories across the northeast Alaska range, *Bull. Seismol. Soc. Am.*, **75**, 1125-1134, 1985.
- Gedney, L., and J. N. Davies, Additional evidence for down-dip tension in the Pacific plate beneath central Alaska, *Bull. Seismol. Soc. Am.*, **76**, 1207-1214, 1986.
- Gee, L. S., and T. H. Jordan, Earth structure from hybrid representations of seismograms, *Eos (Trans. Amer. Geophys. Un.)*, **67**, 302, 1986.
- Gephart, J. W., and D. W. Forsyth, An improved method for determining the regional stress tensor using earthquake focal mechanism data: application to the San Fernando earthquake sequence, *J. Geophys. Res.*, **89**, 9305-9320, 1984.

- Gephart, J. W., and D. D. Forsyth, On the state of stress in New England as determined from earthquake focal mechanisms, *Geology*, 13, 70-72, 1985.
- Gersch, W., and G. Kitagawa, A time varying AR coefficient model for modelling and simulating earthquake ground motion, *Earthquake Engin. and Structural Dynamics*, 13, 243-254, 1985.
- Gerson, R., S. Grossman, and D. Bowman, Stages in the creation of a large rift valley—geomorphic evolution along the southern Dead Sea rift, in *Tectonic Geomorphology, Proc. of the 15th Annual Binghamton Geomorphology Symposium*, edited by M. Morisawa and J. T. Hack, pp. 53-73, Allen and Unwin, Boston, MA, 1985.
- Gettings, M. E., H. R. Blank, W. D. Mooney, and J. H. Healy, Crustal structure of Saudi Arabia, *J. Geophys. Res.*, 91, 6491-6512, 1986.
- Gettrust, J. F., and L. N. Frazer, A computer model study of the propagation of the long-range P_n phase, *Geophys. Res. Lett.*, 749-752, 1981.
- Giardini, D., and J. H. Woodhouse, Deep seismicity and modes of deformation in Tonga subduction zone, *Nature*, 307, 505-509, 1984.
- Giardini, D., X.-D. Li, and J. H. Woodhouse, Three dimensional structure of the earth from splitting in free oscillation spectra, *Nature*, in press, 1986.
- Gibbs, A. K., Seismic reflection profiles of Precambrian crust: a qualitative assessment, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 95-106, AGU Geodynamics Series, Washington, DC, 1986.
- Gibbs, A. K., B. Payne, T. Setzer, L. D. Brown, J. E. Oliver, and S. Kaufman, Seismic-reflection study of the Precambrian crust of central Minnesota, *Geol. Soc. Am. Bull.*, 95, 280-294, 1984.
- Gilbert, K. E., and R. B. Evans, A Green's function method for one-way wave propagation in a range-independent environment, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 21-29, Plenum Press, NY, 1986.
- Ginzburg, A., W. D. Mooney, A. W. Walter, W. J. Lutter, and J. H. Healy, Deep structure of northern Mississippi embayment, *Bull. Am. Assn. Petrol. Geologists*, 67, 2031-2046, 1983.
- Given, J. W., Inversion of body-wave seismograms for upper mantle structure, Ph.D. thesis, 154 pp. Calif. Inst. of Technol., Pasadena, CA, 1983.
- Glaser, R. E., S. R. Taylor, M. D. Denney, and E. S. Vergino, Regional discrimination of NTS explosions and western U.S. earthquakes: multivariate discriminants, *UCID-20930*, 30 pp., Lawrence Livermore Nat'l Lab., Livermore, CA, November 1986.
- Glenn, L. A., Verification limitations on a comprehensive nuclear test ban treaty, *Nature*, 310, 359-362, 1984.
- Glenn, L. A., Cavity decoupling and the evasion of a comprehensive test ban, *UCRL-90321*, Lawrence Livermore Nat'l Lab., Livermore, CA, 1985.
- Glenn, L. A., A. J. C. Ladd, B. Moran, and K. A. Wilson, *Geophys. J. R. Astron. Soc.*, 81, 231-241, 1985.
- Glenn, L. A., B. Moran, A. J. C. Ladd, K. A. Wilson, and J. A. Rial, Elastic radiation from explosively-loaded axisymmetric cavities, *J. Geophys. Res.*, 86, 119-136, 1986.
- Gold, T., and S. Soter, Fluid ascent through the solid lithosphere and its relation to earthquakes, *Pageoph.*, 122, 492-530, 1984/85.
- Grand, S. P., A tomographic inversion for shear velocity beneath the North American plate, *Eos (Trans. Amer. Geophys. Un.)*, 67, 302, 1986.
- Grand, S. P., Shear velocity structure of the mantle beneath the North American plate, Ph.D. thesis, 228 pp., Calif. Inst. of Technol., Pasadena, CA, 1986.
- Grand, S. P., and D. V. Helmberger, Upper mantle shear structure beneath the northwest Atlantic ocean, *J. Geophys. Res.*, 89, 11465-11475, 1984.
- Grand, S. P., and D. V. Helmberger, Upper mantle shear structure of North America, *Geophys. J. R. Astron. Soc.*, 76, 399-438, 1984.
- Grand, S. P., and D. V. Helmberger, Upper mantle shear structure beneath Asia from multi-bounce S waves, *Phys. Earth Planet. Inter.*, 41, 154-169, 1985.
- Grand, S., D. V. Helmberger, and L. J. Burdick, An attenuation bias measurement for the Semipalatinsk test site from multiple S phases, *Semi-Annual Technical Report to Advanced Research Projects Agency*, Woodward Clyde Consultants, WCC P-R-84-06, Pasadena, CA, 27 pp., 1984.
- Grange, F., P. Cunningham, J. Gagnepain, D. Hatzfeld, P. Molnar, L. Ocola, A. Rodrigues, S. W. Roecker, J. M. Stock, and G. Suarez, The configuration of the seismic zone and the downgoing slab in southern Peru, *Geophys. Res. Lett.*, 11, 38-41, 1984.

- Grange, F., D. Hatzfeld, P. Cunningham, P. Molnar, S. W. Roecker, G. Suarez, A. Rodrigues, and L. Ocola, Tectonic implications of the microearthquake seismicity and fault plane solutions in southern Peru, *J. Geophys. Res.*, **89**, 6139–6152, 1984.
- Grant, W. C., and C. S. Weaver, Earthquakes near Swift reservoir, Washington, 1958–1963: seismicity along the southern St. Helens seismic zone, *Bull. Seismol. Soc. Am.*, **76**, 1573–1587, 1986.
- Grant, W. C., C. S. Weaver, and J. E. Zollweg, The 14 February 1981 Elk Lake, Washington, earthquake sequence, *Bull. Seismol. Soc. Am.*, **74**, 1289–1310, 1984.
- Grantz, A., D. A. Dinter, and N. N. Biswas, Map, cross sections, and chart showing late Quaternary faults, folds, and earthquake epicenters on the Alaskan Beaufort shelf, U.S. Geol. Surv. Misc. Investigation Ser., Map I-1182-C, 1–7, 1983.
- Graves, R., S. Grand, and D. V. Helmberger, Upper mantle cross-section from Tonga to California, *Eos (Trans. Amer. Geophys. Un.)*, **66**, 975, 1985.
- Gray, R. A., and J. F. Lewkowicz, eds., Papers presented at 7th Annual DARPA/AFGL Seismic Research Symposium, Defense Advanced Research Projects Agency, Arlington, VA, 1985.
- Greb, G. A., and W. Heckrotte, The long history: the test ban debate, *Bull. Atomic Sci.*, pp. 36–43, August/September 1983.
- Green, A. G., Z. Hajnal, and W. Weber, An evolutionary model of the western Churchill province and western margin of the Superior province in Canada and the north-central United States, *Tectonophysics*, **116**, 281–322, 1985.
- Green, A. G., M. J. Berry, C. P. Spencer, E. R. Kanasewich, S. Chiu, R. M. Clowes, C. J. Yorath, D. B. Stewart, J. D. Unger, and W. H. Poole, Recent seismic reflection studies in Canada, in *Reflection Seismology: A Global Perspective*, vol. 13, edited by M. Barazangi and L. Brown, pp. 85–97, AGU Geodynamics Series, Washington, DC, 1986.
- Gremell, P. E., and F. A. Cook, Shear waves (?) on COCORP southern Appalachian reflection data, *J. Geophys. Res.*, **90**, 11367–11373, 1985.
- Grim, M. S., and J. F. Gettrust, Geophysical site survey results: Leg 88, *Initial Reports of the Deep Sea Drilling Project*, in press, 1986.
- Grimison, N. L., and W.-P. Chen, The Azores-Gibraltar plate boundary: focal mechanisms, depths of earthquakes, and their tectonic implications, *J. Geophys. Res.*, **91**, 2029–2047, 1986.
- Gross, W. K., and J. C. Savage, Deformation near the epicenter of the 1984 Round Valley, California, earthquake, *Bull. Seismol. Soc. Am.*, **75**, 1339–1347, 1985.
- Gupta, H. K., and H. M. Iyer, Are reservoir-induced earthquakes of magnitude >5.0 at Koyna, India, preceded by pairs of earthquakes of magnitude >4?, *Bull. Seismol. Soc. Am.*, **74**, 863–874, 1984.
- Gupta, I. N., and R. R. Blandford, A mechanism for generation of short-period transverse motion from explosions, *Bull. Seismol. Soc. Am.*, **73**, 571–591, 1983.
- Gupta, I. N., J. A. Burnetti, and R. A. Wagner, Aspects of L_g ground motion in the coastal plain region, in *Proc. of Conf. XX, A Workshop on "The 1886 Charleston, South Carolina, Earthquake and its Implications for Today,"* edited by W. W. Hays and P. L. Gori, pp. 244–250, U.S. Geol. Surv. Open-File Rep. 83-843, 1983.
- Gupta, I. N., J. A. Burnetti, R. A. Wagner, and M. Marshall, Discrimination between quarry blasts, nuclear explosions and earthquakes, *Technical Report to Defense Advanced Research Projects Agency, TGAL-TR-84-1*, Arlington, VA, 1984.
- Gupta, I. N., R. R. Blandford, R. A. Wagner, J. A. Burnetti, and T. W. McElfresh, Use of P coda for determination of yield of nuclear explosions, *Geophys. J. R. Astron. Soc.*, **83**, 541–553, 1985.
- Gusev, A. A., Descriptive statistical model of earthquake source radiation and its application to an estimation of short-period ground motion, *Geophys. J. R. Astron. Soc.*, **74**, 787–808, 1983.
- Gutenberg, B., Effects of ground on earthquake motion, *Bull. Seismol. Soc. Am.*, **47**, 221–250, 1957.
- Haar, L. C., J. B. Fletcher, and C. S. Mueller, The 1982 Enola, Arkansas, swarm and scaling of ground motion in the eastern United States, *Bull. Seismol. Soc. Am.*, **74**, 2463–2482, 1984.
- Haar, L. C., C. S. Mueller, J. B. Fletcher, and D. M. Boore, Comments on "Some recent L_g phase displacement spectral densities and their implications with respect to prediction of ground motions in eastern North America" by R. Street, *Bull. Seismol. Soc. Am.*, **76**, 291–295, 1986.
- Habermann, R. E., Seismicity rates in the Kuriles Island arc, 1963–1979, *Earthq. Pred. Res.*, **1**, 73–94, 1982.

- Habermann, R. E., Teleseismic detection in the Aleutian arc, *J. Geophys. Res.*, 88, 5056-5064, 1983.
- Habermann, R. E., Spatial seismicity variations and asperities in the New Hebrides seismic zone, *J. Geophys. Res.*, 89, 5891-5903, 1984.
- Habermann, R. E., A test of two techniques for recognizing systematic errors in magnitude estimates using data from Parkfield, California, *Bull. Seismol. Soc. Am.*, 76, 1660-1667, 1986.
- Habermann, R. E., and M. Wyss, Background seismicity rates and precursory seismic quiescence: Imperial Valley, California, *Bull. Seismol. Soc. Am.*, 74, 1743-1755, 1984.
- Habermann, R. E., and M. Wyss, Earthquake triggering during preparation for great earthquakes, *Geophys. Res. Lett.*, 11, 291-294, 1984.
- Habermann, R. E., W. R. McCann, and S. P. Nishenko, A gap is..., *Bull. Seismol. Soc. Am.*, 73, 1485-1486, 1983.
- Habermann, R. E., W. R. McCann, and B. Perin, Spatial seismicity variations along convergent plate boundaries, *Geophys. J. R. Astron. Soc.*, 85, 43-68, 1986.
- Hackett, J. T., Test ban, *Issues in Sci. and Technol.*, pp. 15, Spring 1986.
- Hadley, D. M., and R. J. Apsel, Theoretical and empirical studies of strong ground motion, in *Proc of Conf. XXII, A Workshop on "Site-Specific Effects of Soil and Rock on Ground Motion and the Implications for Earthquake-Resistant Design,"* edited by W. W. Hays, pp. 459-462, U.S. Geol. Surv. Open-File Rep. 83-845, 1983.
- Hadley, D. M., H. G. Hawkins, and K. L. Benuska, Strong ground motion record of the 16 September 1978 Tabas, Iran, earthquake, *Bull. Seismol. Soc. Am.*, 73, 315-320, 1983.
- Hager, B. H., Subducted slabs and the geoid: constraints on mantle and rheology and flow, *J. Geophys. Res.*, 89, 6003-6015, 1984.
- Hager, B. H., R. W. Clayton, M. A. Richards, R. P. Comer, and A. M. Dziewonski, Lower mantle heterogeneity, dynamic topography and the geoid, *Nature*, 313, 541-545, 1985.
- Hajnal, Z., Crustal reflection and refraction velocities: a comparison, in *Reflection Seismology: A Global Perspective*, vol. 13, edited by M. Barazangi and L. Brown, pp. 247-256, AGU Geodynamics Series, Washington, DC, 1986.
- Hajnal, Z., M. R. Stauffer, M. S. King, P. F. Wallis, H. F. Wang, and L. E. A. Jones, Seismic characteristics of a Precambrian pluton and its adjacent rocks, *Geophysics*, 48, 569-581, 1983.
- Hajnal, Z., C. M. R. Fowler, R. F. Mereu, E. R. Kanasewich, G. L. Cumming, A. G. Green, and A. Mair, An initial analysis of the earth's crust under the Williston basin: 1979 COCRUST experiment, *J. Geophys. Res.*, 89, 9381-9400, 1984.
- Hale, L. D., C. J. Morton, and N. H. Sleep, Reinterpretation of seismic reflection data over the east Pacific rise, *J. Geophys. Res.*, 87, 7707-7717, 1982.
- Hall, T. N., Holocene history of the San Andreas fault between Crystal Springs reservoir and San Andreas dam, San Mateo County, California, *Bull. Seismol. Soc. Am.*, 74, 281-300, 1984.
- Hamblin, W. K., Direction of absolute movement along the boundary faults of the Basin and Range-Colorado plateau margin, *Geology*, 12, 116-119, 1984.
- Hamilton, R. M., Seismic reflection studies by the U.S. Geological Survey, in *Reflection Seismology: A Global Perspective*, vol. 13, edited by M. Barazangi and L. Brown, pp. 99-106, AGU Geodynamics Series, Washington, DC, 1986.
- Hamilton, R. M., J. C. Behrendt, and H. D. Ackermann, Land multichannel seismic reflection evidence for tectonic features near Charleston, South Carolina, in *Studies Related to the Charleston, South Carolina Earthquake of 1886-Tectonics and Seismicity*, edited by G. S. Gohn, pp. II-117, U.S. Geol. Surv. Prof. Pap. 1313, 1983.
- Hammond, R. D., and J. R. Gaither, Anomalous seismic character—Bering Sea shelf, *Geophysics*, 48, 1983.
- Hanks, T. C., fmax, *Bull. Seismol. Soc. Am.*, 72, 1867-1879, 1982.
- Hanks, T. C., The National Earthquake Hazards Reduction Program—scientific status, *U.S. Geol. Surv. Bull.* 1659, 40 pp., U.S. Gov't Printing Office, Washington, DC, 1985.
- Hanks, T. C., and D. M. Boore, Moment-magnitude relations in theory and practice, *J. Geophys. Res.*, 89, 6229-6235, 1984.
- Hanks, T. C., and R. K. McGuire, The character of high-frequency strong ground motion, *Bull. Seismol. Soc. Am.*, 71, 2071-2095, 1981.
- Hanks, T. C., and R. E. Wallace, Morphological analysis of the Lake Lahontan shoreline and Beachfront fault scarps, Pershing County, Nevada, *Bull. Seismol. Soc. Am.*, 75, 835-846, 1985.
- Hanks, T. C., R. C. Bucknam, K. R. Lajoie, and R. E. Wallace, Modification of wavecut and

- saulting controlled landforms, *J. Geophys. Res.*, **89**, 5771–5790, 1984.
- Hannon, W. J., Seismic verification of a comprehensive test ban, *Science*, **227**, 251–257, 1985.
- Hannon, W. J., Verification of nuclear testing, reply to J. F. Evernden, *Science*, **228**, 794, 1985.
- Hansen, R. A., Simultaneous estimation of terrestrial eigen vibrations, *Geophys. J. R. Astron. Soc.*, **70**, 155–172, 1982.
- Harden, J. W., A quantitative index of soil development from field descriptions: examples from a chronosequence in central California, *Geoderma*, **28**, 1–28, 1982.
- Harden, J. W., and E. M. Taylor, A quantitative comparison of soil development in four climatic regimes, *Quaternary Research*, **20**, 342–359, 1983.
- Hare, P. W., and T. W. Gardner, Geomorphic indicators of vertical neotectonism along converging plate margins, Nicoya peninsula, Costa Rica, in *Tectonic Geomorphology, Proc. of the 15th Annual Binghamton Geomorphology Symposium*, edited by M. Morisawa and J. T. Hack, pp. 75–104, Allen and Unwin, Boston, MA, 1985.
- Harichandran, R. S., and E. H. Vanmarcke, Stochastic variation of earthquake ground motion in space and time, *J. Engin. Mech. Div., Am. Soc. Civil Eng.*, **112**, 154–174, 1986.
- Harms, K. K., M. M. Clark, M. J. Rymer, M. G. Bonilla, E. L. Harp, D. G. Herd, K. R. Lajoie, J. J. Lienkaemper, S. A. Mathieson, J. A. Perkins, R. E. Wallace, and J. I. Ziony, The April 24, 1984 Morgan Hill, California earthquake: the search for surface faulting, in *The Morgan Hill, California Earthquake of April 24, 1984 (A Preliminary Report)*, vol. 1, pp. 92–108, U.S. Geol. Surv. Open-File Rep. 84-498A, 1984.
- Harmsen, S. C., and A. M. Rogers, Inferences about the local stress field from focal mechanisms: applications to earthquakes in the southern Great basin of Nevada, *Bull. Seismol. Soc. Am.*, **76**, 1560–1572, 1986.
- Harp, E. L., J. Sarmiento, and E. Cranswick, Seismic-induced pore-water pressure records from the Mammoth Lakes, California, earthquake sequence of 24 to 27 May 1980, *Bull. Seismol. Soc. Am.*, **74**, 1381–1393, 1984.
- Harris, J. G., and J. D. Achenbach, Love waves excited by discontinuous propagation of a rupture front, *Geophys. J. R. Astron. Soc.*, **72**, 337–351, 1983.
- Harris, J. G., J. D. Achenbach, and A. N. Norris, Rayleigh waves excited by the discontinuous advance of a rupture front, *J. Geophys. Res.*, **88**, 2233–2239, 1983.
- Hart, E. W., Evidence of surface faulting associated with Morgan Hill earthquake of April 24, 1984, in *The 1984 Morgan Hill, California Earthquake*, edited by J. H. Bennett and R. W. Sherburne, pp. 161–173, Special Publ. 68, Calif. Div. Mines and Geol., Sacramento, CA, 1984.
- Hart, E. W., and R. D. McJunkin, Surface faulting northwest of Coalinga, California June and July 1983, in *The 1983 Coalinga, California Earthquakes*, edited by J. H. Bennett and R. W. Sherburne, pp. 201–219, Special Publ. 66, Calif. Div. Mines and Geol., Sacramento, CA, 1983.
- Hartnady, C. J. H., Uplift, faulting, seismicity, thermal spring and possible incipient volcanic activity in the Lesotho-Natal region, SE Africa: the Quathlamba hotspot hypothesis, *Tectonics*, **4**, 371–378, 1985.
- Hartzell, S., The use of small earthquakes as Green's functions, in *Strong Ground Motion Simulation and Earthquake Engineering Applications*, edited by R. E. Scholl and J. L. King, pp. 22-1–22-8, Publ. 85-02, Earthquake Engin. Res. Inst., El Cerrito, CA, 1985.
- Hartzell, S. H., and T. H. Heaton, Inversion of strong ground motion and teleseismic waveform data for the fault rupture history of the 1979 Imperial Valley, California, earthquake, *Bull. Seismol. Soc. Am.*, **73**, 1553–1583, 1983.
- Hartzell, S. H., and T. H. Heaton, Teleseismic mechanism of the May 2, 1983 Coalinga, California, earthquake from long-period *P*-waves, in *The 1983 Coalinga, California Earthquakes*, edited by J. H. Bennett and R. W. Sherburne, pp. 241–246, Special Publ. 66, Calif. Div. Mines and Geol., Sacramento, CA, 1983.
- Hartzell, S. H., and T. H. Heaton, Teleseismic time functions for large, shallow subduction zone earthquakes, *Bull. Seismol. Soc. Am.*, **75**, 965–1004, 1985.
- Hartzell, S. H., and T. H. Heaton, Rupture history of the 1984 Morgan Hill, California, earthquake from the inversion of strong motion records, *Bull. Seismol. Soc. Am.*, **76**, 649–674, 1986.
- Hartzell, S., and D. V. Helmberger, Strong-motion modeling of the Imperial Valley earthquake of 1979, *Bull. Seismol. Soc. Am.*, **72**, 571–596, 1982.
- Hatcher Jr., R. D., Interpretation of seismic reflection data in complexly deformed terranes: a geologist's perspective, in *Reflection Seismology: The Continental Crust*, vol. 14,

- edited by M. Barazangi and L. Brown, pp. 9–12, AGU Geodynamics Series, Washington, DC, 1986.
- Hauge, T. R., R. Allmendinger, C. Caruso, E. Hauser, S. Klemperer, S. Opdyke, C. Potter, W. Sanford, L. Brown, S. Kaufman, and J. Oliver, Crustal structure of western Nevada from COCORP deep seismic reflection data, *Geol. Soc. Am. Bull.*, in press, 1987.
- Hauksson, E., Constraints on the velocity structure of the crust in the Los Angeles basin and the central Transverse ranges, southern California (abs.), *Eos (Trans. Amer. Geophys. Un.)*, 66, 973, 1985.
- Hauksson, E., Structure of the Benioff zone beneath the Shumagin Islands, Alaska: relocation of local earthquakes using three-dimensional ray tracing, *J. Geophys. Res.*, 90, 635–649, 1985.
- Hauksson, E., and G. Saldivar, The 1930 Santa Monica and the 1979 Malibu California, earthquakes, *Bull. Seismol. Soc. Am.*, 76, 1542–1559, 1986.
- Hauksson, E., J. Armbruster, and S. Dobbs, Seismicity patterns (1963–1983) as stress indicators in the Shumagin seismic gap, *Bull. Seismol. Soc. Am.*, 74, 2541–2559, 1984.
- Hauser, E., S. Burgess, S. Burtch, J. Mutschler, C. Potter, T. Hauge, R. Allmendinger, L. Brown, S. Brown, and J. Oliver, Crustal structure of eastern Nevada from COCORP deep seismic reflection data, *Geol. Soc. Am. Bull.*, in press, 1987.
- Hawes, J. H., Testimony before the Special Panel of Arms Control and Disarmament, House Armed Services Committee, *Congressional Record*, May 8, 1986.
- Hawman, R. B., and R. A. Phinney, Crustal structure of southern Maine and eastern Pennsylvania: extremal inversion of wide angle reflection (abs.), *Eos (Trans. Amer. Geophys. Un.)*, 66, 308, 1985.
- Haworth, R. T., C. E. Keen, and H. Williams, Transects of the ancient and modern continental margins of eastern Canada, *Tectonophysics*, 109, 93–94, 1984.
- Hays, W. D., and P. L. Gori, in *Proc. of Conf. XXXI. A Workshop on "Evaluation of Regional and Urban Earthquake Hazards and Risk in Alaska,"* September 5–7, 1985, 388 pp., Anchorage, AK, U.S. Geol. Surv. Open-File Rep. 86-79, 1986.
- Hays, W. W., Site amplification of earthquake ground motion, in *Proc. of 3rd U.S. Nat. Conf. on Earthquake Engin.*, vol. 1, pp. 357–368, Charleston, SC, 1986.
- Hays, W. W., Technical issues associated with the phenomenon of local site amplification of ground motion, in *Proc. of Conf. XXXIV. A Workshop on "Probabilistic Earthquake Hazards Assessments,"* edited by W. W. Hays, pp. 285–313, U.S. Geol. Surv. Open-File Rep. 86-185, 1986.
- Hays, W. W., and K. W. King, The ground-shaking hazard along the Wasatch fault zone, Utah, in *Proc. of Conf. XXVII, A Workshop on "Evaluation of Regional and Urban Earthquake Hazards and Risks in Utah,"* edited by W. W. Hays and P. L. Gori, pp. 133–147, U.S. Geol. Surv. Open-File Rep. 84-763, 1984.
- Healy, J. H., and T. C. Urban, In situ fluid-pressure measurements for earthquake prediction: an example for a deep well at Hi Vista, California, *Pageoph.*, 122, 255–279, 1984/85.
- Hearn, T. M., *Pn traveltimes in southern California*, *J. Geophys. Res.*, 89, 1843–1855, 1984.
- Hearn, T. M., and R. W. Clayton, Lateral velocity variations in southern California, I. Results for the upper crust from *Pg* waves, *Bull. Seismol. Soc. Am.*, 76, 495–509, 1986.
- Hearn, T. M., and R. W. Clayton, Lateral velocity variations in southern California, II. Results for the lower crust from *Pn* waves, *Bull. Seismol. Soc. Am.*, 76, 511–520, 1986.
- Heaton, T. H., A model for a seismic computerized alert network, *Science*, 228, 987–990, 1985.
- Heaton, T. H., and S. H. Hartzell, Source characteristics of hypothetical subduction earthquakes in the northwestern United States, *Bull. Seismol. Soc. Am.*, 76, 675–708, 1986.
- Heaton, T. H., and H. Kanamori, Seismic potential associated with subduction in the northwestern United States, *Bull. Seismol. Soc. Am.*, 74, 933–941, 1984.
- Heaton, T. H., and H. Kanamori, Reply to H. Acharya's "Comments on 'Seismic potential associated with subduction in the northwestern United States,'" *Bull. Seismol. Soc. Am.*, 75, 891–892, 1985.
- Heaton, T. H., and H. Kanamori, Hypothetical subduction earthquake in the Pacific Northwest, *Bull. Seismol. Soc. Am.*, 76, 675–706, 1986.
- Heaton, T. H., and P. D. Snavely, Jr., Possible tsunami along the northwestern coast of the United States inferred from Indian traditions, *Bull. Seismol. Soc. Am.*, 75, 1455–1460, 1985.
- Heaton, T. H., F. Tajima, and A. W. Mori, Estimating ground motions using recorded

- accelerograms, *Surveys in Geophys.*, 8, 25-83, 1986.
- Heckrotte, W., Verification of test ban treaties, in *Verification and Arms Control*, edited by W. C. Potter, pp. 63-79, Lexington Books, Lexington, MA, 1985.
- Helmberger, D. V., Theory and application of synthetic seismograms, *Proc. of the Enrico Fermi International School of Physics, LXXXV*, edited by H. Kanamori and E. Boschi, pp. 174-222, 1983.
- Helmberger, D. V., G. Engen, and S. Grand, Notes on wave propagation in laterally varying structure, *J. Geophys. Res.*, 88, 82-91, 1985.
- Helmberger, D. V., G. Engen, and S. Grand, Upper-mantle cross-section from California to Greenland, *J. Geophys. Res.*, 88, 92-100, 1985.
- Hempton, M. R., and L. A. Dunne, Sedimentation in pull-apart basins: active examples in eastern Turkey, *J. Geol.*, 92, 513-530, 1984.
- Hempton, M. R., L. A. Dunne, and J. F. Dewey, Sedimentation in an active strike-slip basin, southeastern Turkey, *J. Geology*, 91, 401-412, 1983.
- Henson, I. H., and F. A. Dahlen, Asymptotic normal modes of a laterally heterogeneous earth 2. Further results, *J. Geophys. Res.*, 91, 12467-12481, 1986.
- Heney, T. L., and other CALCRUST scientists, The CALCRUST Mojave-Sonoran seismic reflection project, southwestern California (abs.), *Eos (Trans. Amer. Geophys. Un.)*, 66, 972, 1985.
- Hermance, J. F., The Long Valley/Mono basin volcanic complex in eastern California: status of present knowledge and future research needs, *Rev. Geophys.*, 21, 1545-1566, 1983.
- Herrin, E., The resolution of seismic instruments used in treaty verification research, *Bull. Seismol. Soc. Am.*, 72, S61-S67, 1982.
- Herrin, E., and T. Goforth, Phase analysis of Rayleigh waves from the Shagan River test site in the USSR, *Bull. Seismol. Soc. Am.*, 76, 1739-1754, 1986.
- Herrmann, R. B., Q estimates using the coda of local earthquakes, *Bull. Seismol. Soc. Am.*, 70, 447-468, 1980.
- Herrmann, R. B., An extension of random vibration theory estimates of strong ground motion to large distances, *Bull. Seismol. Soc. Am.*, 75, 1447-1453, 1985.
- Herrmann, R. B., and O. W. Nuttli, Scaling and attenuation relations for strong ground motion in eastern North America, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 305-309, San Francisco, CA, 1984.
- Herrmann, R. B., and O. W. Nuttli, Regional variation in ground motion attenuation: current models, consequences, and problems, in *Strong Ground Motion Simulation and Earthquake Engineering Applications, Publ. 85-02*, edited by R. E. Scholl and J. L. King, pp. 13-1-13-9, Earthquake Engin. Res. Inst., El Cerrito, CA, 1985.
- Herron, T. J., Lava flow layer—east Pacific rise, *Geophys. Res. Lett.*, 9, 17-20, 1982.
- Herron, T. J., W. J. Ludwig, P. L. Stoffa, T. K. Kan, and P. Buhl, Structure of the east Pacific rise crest from multichannel seismic data, *J. Geophys. Res.*, 83, 798-804, 1978.
- Herron, T. J., P. L. Stoffa, and P. Buhl, Magma chamber and mantle reflections—east Pacific rise, *Geophys. Res. Lett.*, 7, 989-992, 1980.
- Heusinkveld, M., ed., Seismic Monitoring Research Program Annual Report, Treaty Verification Program, Lawrence Livermore Nat'l Lab., UCID-20628, 67 pp., Livermore, CA, December 1985.
- Heuze, F. E., A review of geomechanics data from French nuclear explosions in the Hoggar granite, with some comparisons to tests in U.S. granite, Lawrence Livermore Nat'l Lab., UCID-19812, 28 pp., Livermore, CA, May 1983.
- Hill, D. P., Monitoring unrest in a large silicic caldera, the Long Valley-Inyo craters volcanic complex in east-central California, *Bull. Volcan.*, 47-2, 371-395, 1984.
- Hill, D. P., and J. J. Zucca, Geophysical constraints on the structure of Kilauea and Mauna Loa volcanoes and some implications for seismomagmatic processes, in *Volcanism in Hawaii*, edited by R. W. Decker et al., pp. 903-918, U.S. Geol. Surv. Prof. Pap., 1950, 2, 1987.
- Hill, D. P., R. A. Bailey, and A. S. Ryall, Active tectonic and magmatic processes beneath Long Valley caldera, eastern California, *J. Geophys. Res.*, 90, 11111-11120, 1985.
- Hill, D. P., E. Kissling, J. H. Luettgert, and U. Kradolfer, Constraints on the upper crustal structure of the Long Valley-Mono craters volcanic complex, eastern California, from seismic refraction measurements, *J. Geophys. Res.*, 90, 11135-11150, 1985.
- Hill, D. P., R. E. Wallace, and R. S. Cockerham, Review of evidence on the potential for major earthquakes and volcanism in the Long Valley-Mono crater-White Mountains regions of eastern California, *Earthq. Pred. Res.*, 3, 571-594, 1985.

- Hill, M. L., Earthquakes and folding, Coalinga, California, *Geology*, 12, 711-712, 1984.
- Hinz, K., A hypothesis on terrestrial catastrophes, wedges of very thick ocean-ward dipping layers beneath passive continental margins—their origin and paleoenvironmental significance, *Geol. Jahrb., Reihe E.*, 22, 3-28, 1981.
- Hobaek, H., C. T. Tindle, and T. G. Muir, Experiments on sound propagation over sloped bottoms, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 199-206, Plenum Press, NY, 1986.
- Hofstetter, A., and S. D. Malone, Observations of volcanic tremor at Mount St. Helens in April and May 1980, *Bull. Seismol. Soc. Am.*, 76, 923-938, 1986.
- Holbrook, W. S., and W. D. Mooney, The crustal structure of the axis of the Great Valley, California, from seismic refraction measurements, *Tectonophysics*, in press, 1987.
- Holmes, H. A., Testimony before the Special Panel on Arms Control and Disarmament, House Armed Services Committee, *Congressional Record*, May 15, 1986.
- Hopper, M. G., S. T. Algermissen, and E. E. Dobrovolny, Estimation of earthquake effects associated with a great earthquake in the New Madrid seismic zone, in *Proc. of Conf. XXIII, A Workshop to Reduce Potential Losses from Future Earthquakes in Arkansas and Nearby States*, edited by W. W. Hays and P. L. Gori, pp. 31-112, U.S. Geol. Surv. Open-File Rep. 83-846, 1983.
- Hopper, M. G., P. C. Thenhaus, L. M. Barnhard, and S. T. Algermissen, Damage survey in Coalinga, California for the earthquake of May 2, 1983, in *The 1983 Coalinga, California Earthquakes*, edited by J. H. Bennett and R. W. Sherburne, pp. 5-8, Special Publ. 66, Calif. Div. Mines and Geol., Sacramento, CA, 1983.
- Horgan, J., Underground nuclear weapons testing, *IEEE Spectrum*, pp. 32-43, April 1986.
- Houlday, M., and R. Quittmeyer, Recent seismicity in north- and east-central New York State, *Earthquake Notes*, 55, 16-20, 1984.
- House, L. S., and K. H. Jacob, Earthquakes, plate subduction, and stress reversals in the eastern Aleutian arc, *J. Geophys. Res.*, 88, 9347-9373, 1983.
- Houston, H., and H. Kanamori, Source spectrum of great earthquakes and prediction of strong motion, in *Strong Ground Motion Simulation and Earthquake Engineering Applications*, Publ. 85-02, edited by R. E. Scholl and J. L. King, pp. 16-1-16-7, Earthquake Engin. Res. Inst., El Cerrito, CA, 1985.
- Houston, H., and H. Kanamori, Source characteristics of the 1985 Michoacan, Mexico earthquake at periods of 1 to 30 seconds, *Geophys. Res. Lett.*, 13, 597-600, 1986.
- Houston, H., and H. Kanamori, Source spectra of great earthquakes: teleseismic constraints on rupture processes and strong motion, *Bull. Seismol. Soc. Am.*, 76, 19-42, 1986.
- Howell, B. F., Jr., On the variation of seismic hazard along the San Andreas fault, *Bull. Seismol. Soc. Am.*, 74, 709-724, 1984.
- Hsu, V., J. F. Gettrust, C. E. Helsley, and E. Berg, Local seismicity preceding the March 14, 1979, Petatlan, Mexico earthquake ($M_s = 7.6$), *J. Geophys. Res.*, 88, 4247-4262, 1983.
- Hsu, V., C. E. Helsley, E. Berg, and D. A. Novelo-Casanova, Correlation of foreshocks and aftershocks and asperities, *Pageoph*, 122, 878-893, 1984/85.
- Huang, M.-J., Investigation of local geology effects on strong earthquake ground motions, *Rep. EERL 83-03*, 230 pp., Earthquake Engin. Res. Lab., Calif. Inst. Tech., Pasadena, CA, 1983.
- Huang, J., and W.-P. Chen, Source mechanisms of the Mogod earthquake sequence of 1967 and the event of 1974 July 4 in Mongolia, *Geophys. J. R. Astron. Soc.*, 84, 361-379, 1986.
- Huang, M.-J., A. F. Shakal, D. L. Parke, R. W. Sherburne, and R. V. Nutt, Processed data from the strong-motion records of the Morgan Hill earthquake of 24 April 1984, Part II. Structural-response records, *Rep. OSMS 85-05*, 320 pp., Office of Strong Motion Studies, Calif. Div. Mines and Geol., Sacramento, CA, 1985.
- Huang, M.-J., A. F. Shakal, and J. T. Ragsdale, Recorded motion of a base-isolated building during the 1985 Redlands earthquake, in *Proc. of a Seminar and Workshop on Base Isolation and Passive Energy Dissipation*, ATC-17, pp. 93-102, Applied Tech. Council, Redwood City, CA, 1986.
- Huang, M.-J., A. F. Shakal, D. L. Parke, J. T. Ragsdale, and R. W. Sherburne, Processed data from the strong-motion record obtained at a base-isolated building in Rancho Cucamonga, California during the Redlands earthquake of 2 October 1985, *Rep. OSMS 86-01*, 70 pp., Office of Strong Motion Studies, Calif. Div. Mines and Geol., Sacramento, CA, 1986.
- Huang, M.-J., R. W. Sherburne, D. L. Parke, and A. F. Shakal, CSMIP strong-motion

- records from the Palm Springs, California earthquake of 8 July 1986, *Rep. OSMS 86-05*, 74 pp., Office of Strong Motion Studies, Calif. Div. Mines and Geol., Sacramento, CA, 1986.
- Huang, P. Y., S. C. Solomon, E. A. Bergman, and J. L. Nábělek, Focal depths and mechanisms of Mid-Atlantic ridge earthquakes from body wave inversion, *J. Geophys. Res.*, 91, 579-597, 1986.
- Huchon, P., and X. Le Pichon, Sunda strait and Central Sumatra fault, *Geology*, 12, 668-672, 1984.
- Hudson, D. E., Strong motion accelerograph systems—problems and prospects, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 39-45, San Francisco, CA, 1984.
- Humphrey, J. R., and I. G. Wong, Recent seismicity near Capitol Reef National Park, Utah, and its tectonic implications, *Geology*, 11, 447-451, 1983.
- Humphreys, E., R. W. Clayton, and B. H. Hager, A tomographic image of mantle structure beneath southern California, *Geophys. Res. Lett.*, 11, 625-627, 1984.
- Hurich, C. A., S. B. Smithson, D. M. Fountain, and M. C. Humphreys, Seismic evidence of mylonite reflectivity and deep structure in the Kettle dome metamorphic core complex, Washington, *Geology*, 13, 577-580, 1985.
- Hussong, D. M., and J. B. Sinton, Seismicity associated with back arc crustal spreading in the central Mariana trough, in *The Tectonic and Geological Evolution of Southeast Asian Seas and Islands*, *Geophys. Monogr. Ser.*, 27, edited by D. E. Hayes, pp. 217-235, AGU, Washington, DC, 1983.
- Hutchinson, D. R., and R. S. Detrick, Watergun versus airgun: a comparison, *Mar. Geophys. Res.*, 6, 295-310, 1984.
- Hutchinson, D. R., and J. A. Grow, New York Bight fault, *Geol. Soc. Am. Bull.*, 96, 975-989, 1985.
- Hutchinson, D. R., J. A. Grow, K. D. Klitgord, and R. S. Detrick, Moho reflections from the Long Island platform, eastern United States, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 173-187, AGU Geodynamics Series, Washington, DC, 1986.
- Hutchinson, D. R., K. D. Klitgord, and R. S. Detreick, Rift basins of the Long Island platform, *Geol. Soc. Am. Bull.*, 97, 688-702, 1986.
- Hwang, L., and W. D. Mooney, Velocity and Q structure of the Great Valley, California, based on synthetic seismogram modelling of seismic refraction data, *Bull. Seismol. Soc. Am.*, 76, 1053-1067, 1986.
- Ihnen, S. M., and D. M. Hadley, Prediction of strong ground motion in the Puget Sound region: the 1965 Seattle earthquake, *Bull. Seismol. Soc. Am.*, 76, 905-922, 1986.
- Incorporated Research Institutions for Seismology, Science Plan for a New Global Seismographic Network, Washington, DC, 1984.
- Ingate, S. F., G. L. Duckworth, K. J. Muirhead, and V. Cormier, Inversion of high-resolution slant-stack data for upper mantle structure, *Eos (Trans. Amer. Geophys. Un.)*, 66, 974, 1985.
- IRIS, Program for array seismic studies of the continental lithosphere (PASSCAL), report, IRIS, Inc., Washington, DC, 1984.
- IRIS, Science plan for a new global seismographic network, report, IRIS, Inc., Washington, DC, 1984.
- IRIS, Annual report to the Board of Directors, report, IRIS, Inc., Arlington, VA, Dec., 1985.
- IRIS, Annual report to the Board of Directors, report, IRIS, Inc., Arlington, VA, Dec., 1986.
- Ishida, M., and M. Otake, Seismicity and waveforms of the microearthquakes before and after the Shizuoka-Seibu earthquake, central Japan, *Bull. Seismol. Soc. Am.*, 74, 605-620, 1984.
- Iverson, W. P., and S. Smithson, Reprocessing and reinterpretation of COCORP southern Appalachian profiles, *Earth. Planet. Sci. Lett.*, 62, 75-90, 1983.
- Iverson, W. P., and S. B. Smithson, Reprocessed COCORP southern Appalachian reflection data: root zone to coastal plain, *Geology*, 11, 422-425, 1983.
- Iwan, W. D., D. M. Boore, L.-L. Hsieh, K.-Z. Peng, and T.-L. Teng, The US-China cooperative strong ground motion project, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 23-30, San Francisco, CA, 1984.
- Iwan, W. D., M. A. Moser, and C.-Y. Peng, Some observations on strong-motion earthquake measurement using a digital accelerograph, *Bull. Seismol. Soc. Am.*, 75, 1225-1246, 1985.
- Iyer, H. M., A review of crust and upper mantle structure studies of the Snake River plain-Yellowstone volcanic system: a major lithospheric anomaly in the western U.S.A., *Tectonophysics*, 105, 291-308, 1984.
- Iyer, H. M., Geophysical evidence for the locations, shapes and sizes, and internal structures of magma chambers beneath

- regions of Quaternary volcanism, *Royal Soc. London Philos. Trans.*, A310, 473–510, 1984.
- Iyer, H. M., Seismological detection and delineation of magma chambers beneath intraplate volcanic centers in western U.S.A., *Earth Evolution Sciences*, in press, 1986.
- Jachens, R. C., W. Thatcher, C. W. Roberts, and R. Stein, Correlation of changes in gravity, elevation, and strain in southern California, *Science*, 219, 1215–1217, 1983.
- Jackson, S. M., Acceleration data from the 1983 Borah Peak, Idaho earthquake recorded at the Idaho National Engineering Laboratory, in *Proc. of Workshop XXVIII. On the Borah Peak, Idaho, Earthquake*, vol. A, edited by R. S. Stein and R. C. Bucknam, pp. 385–400, U.S. Geol. Surv. Open-File Rep. 85-290, 1985.
- Jackson, S. M., and J. Boatwright, The Borah Peak, Idaho earthquake of October 28, 1983—strong ground motion, *Earthquake Spectra*, 2, 51–69, 1985.
- Jacob, K. H., Estimates of long-term probabilities for future great earthquakes in the Aleutians, *Geophys. Res. Lett.*, 11, 295–298, 1984.
- Jacob, K. H., and J. Mori, Strong motions in Alaska-type subduction zone environments, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 311–317, San Francisco, CA, 1984.
- Jacobson, R. S., An investigation into the fundamental relationships between attenuation, phase dispersion and frequency using seismic refraction profiles over sedimentary structures, *Geophysics*, 52, 72–87, 1987.
- Jacobson, R. S., R. Adair, and J. Orcutt, Preliminary seismic refraction results using a borehole seismometer at DSDP 395A, *Initial Reports of the Deep Sea Drilling Project*, 78B, 783–792, 1984.
- Jacobson, R. S., G. G. Shor, Jr., and M. Bee, A comparison of velocity and attenuation between the Nicobar and Bengal deep sea fans, *J. Geophys. Res.*, 89, 6181–6196, 1984.
- Jacobson, R. S., L. D. Bibeau, R. Embley, and S. R. Hammon, A microseismicity survey of Axial seamount, Juan de Fuca ridge, *Bull. Seismol. Soc. Am.*, in press, 1986.
- Jacoby, G. C., and L. D. Ulan, Tree ring indications of uplift at Icy Cape, Alaska, related to 1899 earthquakes, *J. Geophys. Res.*, 88, 9305–9314, 1983.
- Jaksha, L. H., and D. H. Evans, Reconnaissance seismic refraction-reflection surveys in northwestern New Mexico, *Bull. Seismol. Soc. Am.*, 74, 1263–1274, 1984.
- Jaksha, L. H., and A. R. Sanford, Earthquakes near Albuquerque, New Mexico, 1976–1981, *J. Geophys. Res.*, 91, 6293–6303, 1986.
- James, D. E., T. J. Clarke, and R. P. Meyer, A study of seismic reflection imaging using microearthquake sources, *Tectonophysics*, in press, 1986.
- Jeanloz, R., and A. B. Thompson, Phase transitions and mantle discontinuities, *Rev. Geophys.*, 21, 51–74, 1983.
- Jennings, P. C., Strong-motion aftershock studies, in *Coalinga, California Earthquake of May 2, 1983*, edited by R. E. Scholl and J. L. Stratta, pp. 43–50, Rep. 84-03, Earthquake Engin. Res. Inst., El Cerrito, CA, 1984.
- Jennings, P. C., and H. Kanamori, Effect of distance on local magnitudes found from strong-motion records, *Bull. Seismol. Soc. Am.*, 73, 265–280, 1983.
- Jennings, P. C., and H. Kanamori, The use of strong-motion instruments to determine local magnitude, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 859–866, San Francisco, CA, 1984.
- Jin, A. S., and K. Aki, Temporal change in coda Q before the Tangshan earthquake of 1976 and the Haicheng earthquake of 1975, *J. Geophys. Res.*, 91, 665–673, 1986.
- Johnson, L. R., and R. C. Lee, Extremal bounds on the P velocity in the earth's core, *Bull. Seismol. Soc. Am.*, 75, 115–130, 1985.
- Johnson, N. M., C. B. Officer, N. D. Opdyke, G. D. Woodard, P. K. Zeitler, and E. H. Lindsay, Rates of late Cenozoic tectonism in the Vallecito–Fish creek basin, western Imperial Valley, California, *Geology*, 11, 664–667, 1983.
- Johnson, R. A., and S. B. Smithson, Thrust faulting in the Laramie Mountains, Wyoming, from reanalysis of COCORP data, *Geology*, 13, 534–537, 1985.
- Johnson, R. A., and S. B. Smithson, Interpretive processing of crustal seismic reflection data: examples from Laramie range COCORP data, in *Reflection Seismology: A Global Perspective*, vol. 13, edited by M. Barazangi and L. Brown, pp. 197–208, AGU Geodynamics Series, Washington, DC, 1986.
- Johnston, A. C., and S. J. Nava, Recurrence rates and probability estimates for the New Madrid seismic zone, *J. Geophys. Res.*, 90, 6737–6753, 1985.
- Johnston, A. C., M. Wyss, R. Koyanagi, and R. E. Habermann, P wave travel times: stability and change within the source volume of a $M = 7.2$ earthquake, *J. Geophys. Res.*, 87, 6889–6905, 1982.

- Johnston, A. C., D. J. Reinbold, and S. I. Brewer, Seismotectonics of the southern Appalachians, *Bull. Seismol. Soc. Am.*, 75, 291-312, 1985.
- Johnston, D. E., and C. A. Langston, The effect of assumed source structure on inversion of earthquake source parameters: the eastern Hispaniola earthquake of 14 September 1981, *Bull. Seismol. Soc. Am.*, 74, 2115-2134, 1984.
- Johnston, M. J. S., S. A. Silverman, R. J. Mueller, and K. S. Breckenridge, Secular variation, crustal contributions, and tectonic activity in California, 1976-1984, *J. Geophys. Res.*, 90, 8707-8717, 1985.
- Johnston, M. J. S., R. D. Borcherdt, and A. T. Linde, Short-period (0.1-10⁵ s): near-source strain field for an earthquake (M_L 3.2) near San Juan Bautista, California, *J. Geophys. Res.*, 91, 11497-11502, 1986.
- Jones, F. B., L. T. Long, K.-H. Zelt, and M. C. Chapman, Columbus, Georgia, earthquakes of October 31, 1982, *Earthquake Notes*, 56, 55-61, 1985.
- Jones, L. M., Foreshocks (1966-1980) in the San Andreas system, California, *Bull. Seismol. Soc. Am.*, 74, 1361-1380, 1984.
- Jones, L. M., Foreshocks and time-dependent earthquake hazard assessment in southern California, *Bull. Seismol. Soc. Am.*, 75, 1669-1680, 1985.
- Jones, L. M., and R. S. Dollar, Evidence of Basin-and-Range extensional tectonics in the Sierra Nevada: the Durwood Meadows swarm, Tulare County, California (1983-1984), *Bull. Seismol. Soc. Am.*, 76, 439-462, 1986.
- Jones, L. M., W. Han, E. Hauksson, A. Jin, Y. Zhang, and Z. Luo, Focal mechanisms and aftershock locations of the Songpan earthquakes of August 1976 in Sichuan, China, *J. Geophys. Res.*, 89, 7697-7707, 1984.
- Jones, L. M., L. K. Hutton, D. D. Given, and C. R. Allen, The North Palm Springs, California, earthquake sequence of July 1986, *Bull. Seismol. Soc. Am.*, 76, 1830-1837, 1986.
- Jones, T. D., and A. Nur, The nature of seismic reflections from deep crustal fault zone, *J. Geophys. Res.*, 89, 3153-3171, 1984.
- Jordan, T. E., B. L. Isacks, R. W. Allmendinger, J. A. Brewer, V. A. Ramos, and C. J. Ando, Andean tectonics related to geometry of subducted Nazca plate, *Geol. Soc. Am. Bull.*, 94, 341-361, 1983.
- Jordan, T. H., and K. C. Creager, Chemical boundary layers and large-scale flow in the mantle and core, *Eos (Trans. Amer. Geophys. Un.)*, 67, 311, 1986.
- Jordan, T. H., A. L. Lerner-Lam, and K. C. Creager, Seismic imaging of mantle convection: the evidence for deep circulation, in *Mantle Convection*, edited by W. R. Peltier, *in press*, 1986.
- Jordanovski, L. R., M. D. Trifunac, and V. W. Lee, Investigation of numerical methods in inversion of earthquake source, *Rep. 86-01*, 259 pp., Dept. Civil Engin., Univ. So. Calif., Los Angeles, CA, 1986.
- Joyner, W. B., A scaling law for the spectra of large earthquakes, *Bull. Seismol. Soc. Am.*, 74, 1167-1188, 1984.
- Joyner, W. B., and D. M. Boore, Peak horizontal acceleration and velocity from strong-motion records including records from the 1979 Imperial Valley, California, earthquake, *Bull. Seismol. Soc. Am.*, 71, 2011-2038, 1981.
- Joyner, W. B., and D. M. Boore, Comments on "New attenuation relations for peak and expected accelerations of strong ground motion," by B. A. Bolt and N. A. Abrahamson, *Bull. Seismol. Soc. Am.*, 73, 1479-1480, 1983.
- Joyner, W. B., and D. M. Boore, Ground motion prediction for design: progress and issues, in *Critical Aspects of Earthquake Ground Motion and Building Damage Potential*, ATC-10-1, pp. 13-22, Applied Tech. Council, Redwood City, CA, 1984.
- Joyner, W. B., and D. M. Boore, Magnitude saturation, in *Strong Ground Motion Simulation and Earthquake Engineering Applications*, *Publ. 85-02*, edited by R. E. Scholl and J. L. King, pp. 12-1-12-8, Earthquake Engin. Res. Inst., El Cerrito, CA, 1985.
- Joyner, W. B., and D. M. Boore, On simulating large earthquakes by Green's function addition of smaller earthquakes, in *Earthquake Source Mechanics*, Maurice Ewing Ser., vol. 6, edited by S. Das et al., pp. 269-274, AGU, Washington, DC, 1986.
- Joyner, W. B., and T. E. Fumal, Use of measured shear-wave velocity for predicting geologic site effects on strong ground motion, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 777-783, San Francisco, CA, 1984.
- Joyner, W. B., and T. E. Fumal, Predictive mapping of earthquake ground motion, in *Evaluating Earthquake Hazards in the Los Angeles Region—An Earth-Science Perspective*, edited by J. I. Ziony, pp. 203-220, U.S. Geol. Surv. Prof. Pap. 1360, 1985.

- Judd, B., R. S. Strait, and L. W. Younke, Decision analysis framework for evaluating CTBT seismic verification options, *UCID-20853*, 41 pp., Lawrence Livermore Nat'l Lab., Livermore, CA, Sept. 1986.
- Julian, B. R., Evidence for dyke intrusion earthquake mechanisms near Long Valley, California, *Nature*, **303**, 323-325, 1983.
- Julian, B. R., and S. A. Sipkin, Earthquake processes in the Long Valley caldera area, California, *J. Geophys. Res.*, **90**, 11155-11169, 1985.
- Jurdy, D. M., and R. A. Phinney, Seismic imaging of the Elberton granite, Inner Piedmont, Georgia, using COCORP southern Appalachian data, *J. Geophys. Res.*, **88**, 5865-5873, 1983.
- Kadinsky-Cade, K., R. Reilinger, and B. Isacks, Surface deformation associated with the November 23, 1977, Caucete, Argentina, earthquake sequence, *J. Geophys. Res.*, **90**, 12691-12700, 1985.
- Kafka, A. L., and M. F. Dollin, Constraints on lateral variation in upper crustal structure beneath southern New England from dispersion of Rg waves, *Geophys. Res. Lett.*, **12**, 235-238, 1985.
- Kafka, A. L., E. A. Schlesinger-Miller, and N. L. Barstow, Earthquake activity in the greater New York city area: magnitudes, seismicity, and geologic structures, *Bull. Seismol. Soc. Am.*, **75**, 1285-1300, 1985.
- Kan, R. J., H. X. Hu, R. S. Zeng, W. D. Mooney, and T. V. McEvilly, Crustal structure of Yunnan province, P.R.C., from seismic refraction profiles, *Science*, **234**, 433-437, 1986.
- Kanamori, H., Global seismicity, in *Earthquakes: Observation, Theory, and Interpretation*, Proc. Intnatl. School Phys. LXXXV, edited by H. Kanamori and E. Boschi, pp. 596-608, North-Holland, Amsterdam, NY, 1983.
- Kanamori, H., Magnitude scale and quantification of earthquakes, *Tectonophysics*, **93**, 185-199, 1983.
- Kanamori, H., Mechanism of the 1983 Coalinga earthquake determined from long-period surface waves, in *The 1983 Coalinga, California Earthquakes*, edited by J. H. Bennett and R. W. Sherburne, pp. 233-240, Special Publ. 66, Calif. Div. Mines and Geol., Sacramento, CA, 1983.
- Kanamori, H., Rupture processes of subduction zone earthquakes, *Ann. Rev. Earth Planet Sci.*, **14**, 293-322, 1986.
- Kanamori, H., and C. R. Allen, Earthquake repeat time and average stress drop, in *Earthquake Source Mechanics*, Maurice Ewing Ser., vol. 6, edited by S. Das et al., pp. 228-235, AGU, Washington, DC, 1986.
- Kanamori, H., and L. Astiz, The 1983 Akita-Oki earthquake ($M_w = 7.8$) and its implications for systematics of subduction earthquakes, *Earthquake Prediction Research*, **3**, 305-317, 1985.
- Kanamori, H., and J. W. Given, Lamb pulse observed in nature, *Geophys. Res. Lett.*, **10**, 373-376, 1983.
- Kanamori, H., J. W. Given, and T. Lay, Analysis of body waves excited by the Mount St. Helens eruption of May 18, 1980, *J. Geophys. Res.*, **89**, 1856-1866, 1984.
- Karson, J. A., and P. J. Fox, Geological and geophysical investigation of the Mid-Cayman spreading center: seismic velocity measurements and implications for the constitution of layer 3, *Geophys. J. R. Astron. Soc.*, **85**, 389-411, 1986.
- Karson, J. A., J. A. Collins, and J. F. Casey, Geologic and seismic velocity structure of the crust/mantle transition in the Bay of Islands ophiolite complex, *J. Geophys. Res.*, **89**, 6126-6138, 1984.
- Katz, J. I., A model of propagating brittle failure in heterogeneous media, *J. Geophys. Res.*, **91**, 10412-10420, 1986.
- Kaufman, S., COCORP: New York-New England and Kansas areas, *Geophysics*, **48**, 794-795, 1983.
- Kaufman, S., COCORP: Utah area, Part I; and Mojave, California area, *Geophysics*, **49**, 1120-1121, 1984.
- Kaufman, S., COCORP: Utah area, Part II; Death Valley area, California; and Coalinga area, California, *Geophysics*, **49**, 2198-2199, 1984.
- Kausel, E., and J. M. Roessel, Soil amplification: some refinements, *Soil Dynamics and Earthquake Engin.*, **3**, 116-123, 1984.
- Kavazanjian, E., Jr., H. Echezuria, and M. W. McCann, RMS acceleration hazard for San Francisco, *Soil Dynamics and Earthquake Engin.*, **4**, 106-123, 1985.
- Kawakatsu, H., Can "pure path" models explain free oscillation data?, *Geophys. Res. Lett.*, **10**, 186-189, 1983.
- Kawakatsu, H., Double seismic zone in Tonga, *Nature*, **316**, 53-55, 1985.
- Kawakatsu, H., Double seismic zones: kinematics, *J. Geophys. Res.*, **91**, 4811-4825, 1986.

- Kawakatsu, H., Downdip tensional earthquakes beneath the Tonga arc: a double seismic zone?, *J. Geophys. Res.*, 91, 6432-6440, 1986.
- Kawakatsu, H., and T. Seno, Triple seismic zone and the regional variation of seismicity along the northern Honshu arc, *J. Geophys. Res.*, 88, 4215-4230, 1983.
- Kawasaki, I., A method for the near-source anisotropy by the pair-event inversion of Rayleigh-wave radiation patterns, *Geophys. J. R. Astron. Soc.*, 71, 395-424, 1982.
- Kawashima, K., K. Aizawa, and K. Takahashi, Attenuation of peak ground motion and absolute acceleration response spectra, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 257-264, San Francisco, CA, 1984.
- Keefer, D. K., Landslides caused by earthquakes, *Geol. Soc. Am. Bull.*, 95, 406-421, 1984.
- Keen, C. E., M. J. Keen, B. Nichols, I. Reid, G. S. Stockmal, S. P. Colman-Sadd, S. J. O'Brien, H. Miller, G. Quinlan, H. Williams, and J. Wright, Deep seismic reflection profile across the northern Appalachians, *Geology*, 14, 141-145, 1985.
- Keller, E. A., Investigation of active tectonics: use of surficial earth processes, in *Active Tectonics*, pp. 136-147, National Academy Press, Washington, DC, 1986.
- Keller, G. R., and G. A. McMechan, A wide angle reflection/refraction survey in southern Oklahoma (abs.), *Eos (Trans. Amer. Geophys. Un.)*, 66, 301, 1985.
- Keller, G. R., G. McMechan, L. Braile, and S. Harder, PASSCAL Ouachita lithospheric seismic study: experiment design (abs.), *Eos (Trans. Amer. Geophys. Un.)*, 67, 1096, 1986.
- Kelsey, H. M., and S. M. Cashman, Wrench faulting in northern California and its tectonic implications, *Tectonics*, 2, 565-576, 1983.
- Kerr, A. U., ed., The VELA program: a twenty-five year review of basic research, Defense Advanced Research Projects Agency, Arlington, VA, 964 pp., 1985.
- Khemici, O., and W.-L. Chiang, Frequency domain corrections of earthquake accelerograms with experimental verifications, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 103-110, San Francisco, CA, 1984.
- Khoury, S. G., N. R. Tilford, U. Chandra, and D. Amick, The effect of multiple events on isoseismal maps of the 1981 earthquakes at the Gulf of Corinth, Greece, *Bull. Seismol. Soc. Am.*, 73, 655-660, 1983.
- Kidder, R. E., Militarily significant nuclear explosive yields, *J. Federation of American Sci.*, 38, 1-2, 1985.
- Kieckhefer, R. M., B. J. Russel, and A. S. Meltzer, Refraction survey in Santa Cruz basin and Patton ridge, California borderlands (abs.), *Eos (Trans. Amer. Geophys. Un.)*, 66, 973, 1985.
- Kieffer, S. W., Seismicity at Old Faithful Geyser: an isolated source of geothermal noise and possible analog to volcanic seismicity, *Jour. Vol. Geotherm. Res.*, 22, 59-96, 1984.
- Kienle, J., S. E. Swanson, and H. Pulpan, Magmatism and subduction in the eastern Aleutian arc, in *Arc Volcanism: Physics and Tectonics*, *Geophys. Monogr. Ser.*, edited by D. Shimozuru and I. Yokoyama, pp. 191-224, TERRAPUB, Tokyo, 1983.
- Kim, I. I., D. K. Smith, H. W. Menard, J. A. Orcutt, and T. H. Jordan, Seismic reflection site survey: correlation with physical properties Leg 91, Deep Sea Drilling Project, *Initial Reports of the Deep Sea Drilling Project*, 88/91, in press, 1986.
- Kim, Y., L. D. McGinnis, and R. H. Bowen, The Victoria land basin: part of an extended crustal complex between east and west Antarctica, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 323-330, AGU Geodynamics Series, Washington, DC, 1986.
- Kimball, J. K., The use of site dependent spectra, in *Proc. of Conf. XXII, A Workshop on "Site-Specific Effects of Soil and Rock on Ground Motion and the Implications for Earthquake-Resistant Design,"* edited by W. W. Hays, pp. 401-422, U.S. Geol. Surv. Open-File Rep. 83-845, 1983.
- King, C., Radon monitoring for earthquake prediction in China, *Earthq. Pred. Res.*, 3, 47-68, 1985.
- King, C.-Y., Impulsive radon emanation on a creeping segment of the San Andreas fault, California, *Pageoph.*, 122, 340-352, 1984/85.
- King, C.-Y., Gas geochemistry applied to earthquake prediction: an overview, *J. Geophys. Res.*, 91, 12269-12281, 1986.
- King, C.-Y., Predictability of slip events along a laboratory fault, *Geophys. Res. Lett.*, 13, 1165-1168, 1986.
- King, G., The accommodation of large strains in the upper lithosphere of the earth and other solids by self-similar fault systems: the geometrical origin of *b*-value, *Pageoph.*, 121, 761-815, 1983.
- King, G. C. P., and J. Nábělek, Role of fault bends in the initiation and termination of

- earthquake rupture, *Science*, 228, 984-987, 1985.
- King, G. C. P., and J. Nábělek, The role of bends in faults in the initiation and termination of earthquake rupture: implications for earthquake prediction, *Science*, 228, 984-987, 1985.
- King, G., and R. Stein, Surface folding, river terrace deformation rate and earthquake repeat time in a reverse faulting environment: the Coalinga, California, earthquake of May 1983, in *The 1983 Coalinga, California Earthquakes, Special Publication 66*, edited by J. H. Bennett and R. W. Sherburne, pp. 165-176, Calif. Dept. Conservation, Div. Mines and Geology, 1983.
- King, G., and G. Yielding, The evolution of a thrust fault system: processes of rupture initiation, propagation and termination in the 1980 El Asnam (Algeria) earthquake, *Geophys. J. R. Astron. Soc.*, 77, 915-933, 1984.
- King, G. C. P., A. Tselenitis, J. Gomberg, P. Molnar, S. W. Roecker, H. Sinvahl, C. Soufleris, and J. M. Stock, Microearthquake seismicity and active tectonics of northwestern Greece, *Earth Planet. Sci. Lett.*, 66, 279-288, 1983.
- King, J. L., and B. E. Tucker, Observed variations of earthquake motion across a sediment-filled valley, *Bull. Seismol. Soc. Am.*, 74, 137-151, 1984.
- King, N. E., and J. C. Savage, Strain-rate profile across the Elsinore, San Jacinto, and San Andreas faults near Palm Springs, California, 1973-1981, *Geophys. Res. Lett.*, 10, 55-57, 1983.
- Kiremidjian, A. S., and T. Anagnos, Stochastic slip-predictable model for earthquake occurrences, *Bull. Seismol. Soc. Am.*, 74, 739-755, 1984.
- Kissling, E., R. C. Cockerham, and W. L. Ellsworth, Three-dimensional structure of the Long Valley caldera, California, region by geotomography, in *Proc. of Workshop XIX. Active Tectonic and Magmatic Processes Beneath Long Valley caldera, Eastern California*, edited by D. Hill, pp. 188-220, U.S. Geol. Surv. Open-File Rep. 84-0939, 1984.
- Klein, F. W., Eruption forecasting at Kilauea volcano, Hawaii, *J. Geophys. Res.*, 89, 3059-3073, 1984.
- Klein, F. W., and R. Y. Koyanagi, Earthquake map of south Hawaii 1968-1981, *U.S. Geol. Surv. Misc. Investigation Ser., Map I-1611*, 1, 1985.
- Klein, F. W., R. Y. Koyanagi, J. S. Nakata, and W. R. Tanigawa, The seismicity of Kilauea's magma system, in *Volcanism in Hawaii*, edited by R. W. Decker et al., pp. 1019-1186, *U.S. Geol. Surv. Prof. Pap.*, 1350, 2, 1987.
- Klemperer, S. L., T. A. Hauge, E. C. Hauser, J. E. Oliver, and C. J. Potter, The Moho in the northern Basin and Range province, Nevada, along the COCORP 40N seismic-reflection transect, *Geol. Soc. Am. Bull.*, 97, 603-618, 1986.
- Knopoff, L., The thickness of the lithosphere from the dispersion of surface waves, *Geophys. J. R. Astron. Soc.*, 74, 55-81, 1983.
- Koelsch, D. E., W. E. Witzell, J. E. Broda, F. B. Wooding, and G. M. Purdy, A deep towed explosive source for seismic experiments on the ocean floor, *Mar. Geophys. Res.*, in press, 1986.
- Kong, L., T. M. Brocher, and R. A. Stephen, Spreading rate independence of oceanic seismic layer 2, *Geophys. Res. Lett.*, 12, 219-222, 1985.
- Kostrov, B. V., and S. Das, On the elastic contact modeling of faults with variable stiffness, in *Earthquake Source Mechanics, Maurice Ewing Ser.*, vol. 6, edited by S. Das et al., pp. 65-70, AGU, Washington, DC, 1986.
- Koyanagi, R. Y., B. Chouet, and K. Aki, Origin of volcanic tremor in Hawaii, Part I. Data from the Hawaiian Volcano Observatory 1969-1985, in *Volcanism in Hawaii*, edited by R. W. Decker et al., pp. 1221-1259, *U.S. Geol. Surv. Prof. Pap.*, 1350, 2, 1987.
- Kroenke, L. W., and D. A. Walker, Evidence for the formation of a new trench in the western Pacific, *Eos (Trans. Amer. Geophys. Un.)*, 67, 145-146, 1986.
- Kromer, B., M. Rhein, M. Bruns, H. Schoch-Fischer, K. O. Münnich, M. Stuiver, and B. Becker, Radiocarbon calibration data for the 6th to the 8th millenia, BC, *Radiocarbon*, 28, 954-960, 1986.
- Kruger-Knuepfer, J. L., M. L. Sbar, and R. M. Richardson, Microseismicity of the Kaibab plateau, northern Arizona, and its tectonic implications, *Bull. Seismol. Soc. Am.*, 75, 491-506, 1985.
- Kuo, B.-Y., D. W. Forsyth, and M. Wyssession, Lateral heterogeneity and azimuthal anisotropy in the north Atlantic determined from SS-S differential travel times, *J. Geophys. Res.*, in press, 1986.
- Kupperman, W. A., and B. E. McDonald, Linear and nonlinear ocean acoustic propagation models, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 115-128, Plenum Press, NY, 1986.

- Kutschera, W., Accelerator mass spectrometry: from nuclear physics to dating, *Radiocarbon*, 25, 677-691, 1983.
- Lachenbruch, A. H., J. H. Sass, and S. P. Galanis, Jr., Heat flow in southernmost California and the origin of the Salton trough, *J. Geophys. Res.*, 90, 6709-6736, 1985.
- Ladd, J. W., M. Trushan, M. Talwani, P. L. Stoffa, P. Buhl, R. Houtz, A. Mauffret, and G. Westbrook, Seismic reflection profiles across the southern margin of the Caribbean, in *The Caribbean-South American Plate Boundary and Regional Tectonics*, The Geological Society of America, Memoir 162, edited by W. E. Bonini et al., pp. 153-160, 1984.
- Lahr, J. C., R. A. Page, C. D. Stephens, and K. A. Fogleman, Sutton, Alaska, earthquake of 1984: evidence for activity on the Talkeetna segment of the Castle Mountain fault system, *Bull. Seismol. Soc. Am.*, 76, 967-984, 1986.
- Lajoie, K. R., Coastal tectonics, in *Active Tectonics*, pp. 95-124, National Academy Press, Washington, DC, 1986.
- Lambert, D. G., T. J. Bennett, and J. R. Murphy, Further studies of regional discrimination in the western United States and Eurasia, *Semiannual Report to Defense Advanced Research Projects Agency, S-cubed, SSS-R-85-6874*, 50 pp., La Jolla, CA, 1984.
- Lander, J. F., C. A. Angel, and J. L. Coffman, Activities of the world data center in earthquake engineering, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 79-86, San Francisco, CA, 1984.
- Langbein, J. O., M. F. Linker, A. McGarr, and L. E. Slater, Observations of strain accumulation across the San Andreas fault near Palmdale, California, with a two-color geodimeter, *Science*, 218, 1217-1219, 1982.
- Langston, C. A., Kinematic analysis of strong motion *P* and *SV* waves from the Sterling event, *J. Geophys. Res.*, 88, 3486-3497, 1983.
- Langston, C. A., and W. A. Arnold, Moment tensor inversions and dipping slabs, *Geophys. Res. Lett.*, 9, 1290-1293, 1982.
- Langston, C. A., and C.-E. Baag, The validity of ray theory approximations for the computation of teleseismic *SV* waves, *Bull. Seismol. Soc. Am.*, 75, 1719-1727, 1985.
- Langston, C. A., and J.-J. Lee, Effect of structure geometry on strong ground motions: the Duwamish River Valley, Seattle, Washington, *Bull. Seismol. Soc. Am.*, 73, 1851-1863, 1983.
- Larner, K., R. Chambers, M. Yang, W. Lynn, and W. Wai, Coherent noise in marine seismic data, *Geophysics*, 48, 854-886, 1986.
- Larson, D. B., ed., *Proceedings of the Department of Energy Sponsored Cavity Decoupling Workshop, Pajaro Dunes, CA, 1986/3-687-002/440*, Dept. of Energy, U.S. Gov't Printing Office, Washington, DC, 1986.
- LASE Study Group, Deep structure of the U.S. east coast passive margin from the Large Aperture Seismic Experiment (LASE), *Marine and Petrol. Geol.*, in press, 1986.
- Lavely, E. M., D. W. Forsyth, and P. Friedemann, Scales of heterogeneity near the core-mantle boundary, *Geophys. Res. Lett.*, 13, 1505-1508, 1986.
- Lawson, J. E., Jr., The north-central Oklahoma event of February 16, 1956, *Earthquake Notes*, 54, 5-9, 1956.
- Lay, T., Localized velocity anomalies in the lower mantle, *Geophys. J. R. Astron. Soc.*, 72, 483-516, 1983.
- Lay, T., Analysis of diffracted *S* waves traversing a region with a lower mantle shear velocity discontinuity, *Eos (Trans. Amer. Geophys. Un.)*, 66, 310, 1985.
- Lay, T., Estimating explosion yield by analytical waveform comparison, *Geophys. J. R. Astron. Soc.*, 82, 1-30, 1985.
- Lay, T., Evidence for a lower mantle shear velocity discontinuity in *S* and *sS* phases, *Geophys. Res. Lett.*, 13, 1493-1496, 1986.
- Lay, T., Investigations of *D''* shear velocity structure using the Graefenberg array, *Eos (Trans. Amer. Geophys. Un.)*, 67, 312, 1986.
- Lay, T., and D. V. Helmberger, A lower mantle *S* wave triplication and the shear velocity structure of *D''*, *Geophys. J. R. Astron. Soc.*, 75, 799-837, 1983.
- Lay, T., and D. V. Helmberger, A shear velocity discontinuity in the lower mantle, *Geophys. Res. Lett.*, 10, 63-66, 1983.
- Lay, T., and D. V. Helmberger, Body-wave amplitude and travel time correlations across North America, *Bull. Seismol. Soc. Am.*, 73, 1063-1076, 1983.
- Lay, T., and D. V. Helmberger, The shear-wave velocity gradient at the base of the mantle, *J. Geophys. Res.*, 88, 8160-8170, 1983.
- Lay, T., and H. Kanamori, Geometric effects of global lateral heterogeneity on long-period surface wave propagation, *J. Geophys. Res.*, 90, 605-621, 1985.
- Lay, T., and E. Okal, The Gilbert Islands (Republic of Kiribati) earthquake swarm of 1981-83, *Phys. Earth Planet. Inter.*, 33, 284-303, 1983.
- Lay, T., and T. C. Wallace, Multiple *ScS* travel times and attenuation beneath Mexico and

- Central America, *Geophys. Res. Lett.*, **10**, 301–304, 1983.
- Lay, T., and C. J. Young, The effect of SKS scattering on models of the shear-velocity structure of the D'' region, *J. Geophys. Res.*, **59**, 11–15, 1986.
- Lay, T., H. Kanamori, and L. Ruff, The asperity model and the nature of large subduction zone earthquakes, *Earthq. Pred. Res.*, **1**, 3–71, 1982.
- Lay, T., L. J. Burdick, and D. V. Helmberger, Estimating the yields of the Amchitka tests by waveform intercorrelation, *Geophys. J. R. Astron. Soc.*, **78**, 181–207, 1984.
- Lay, T., D. V. Helmberger, and D. G. Harkrider, Source models and yield-scaling relations for underground nuclear explosions at Amchitka Island, *Bull. Seismol. Soc. Am.*, **74**, 843–862, 1984.
- Lay, T., T. C. Wallace, and D. V. Helmberger, The effects of tectonic release on short-period P waves from NTS explosions, *Bull. Seismol. Soc. Am.*, **74**, 819–842, 1984.
- Leary, P. C., and T. L. Henyey, Anisotropy and fracture zones about a geothermal well from P -wave velocity profiles, *Geophysics*, **50**, 25–36, 1985.
- Leaver, D. S., W. D. Mooney, and W. M. Kohler, A seismic refraction study of the Oregon cascades, *J. Geophys. Res.*, **89**, 3121–3134, 1984.
- Le Dain, A. Y., P. Tapponnier, and P. Molnar, Active faulting and tectonics of Burma and surrounding regions, *J. Geophys. Res.*, **89**, 453–472, 1984.
- Lee, C.-T., F. E. Elghadamsi, and B. Mohraz, Smooth power spectral density of accelerograms and its application to multi-degree-of-freedom systems, *Rep.*, 201 pp., Civil and Mech. Engin. Dept., Southern Methodist Univ., Dallas, TX, 1986.
- Lee, J.-J., and C. A. Langston, Three-dimensional ray tracing and the method of principal curvature for geometric spreading, *Bull. Seismol. Soc. Am.*, **73**, 765–780, 1983.
- Lee, J.-J., and C. A. Langston, Wave propagation in a three-dimensional circular basin, *Bull. Seismol. Soc. Am.*, **73**, 1637–1653, 1983.
- Lee, R. C., and L. R. Johnson, Extremal bounds on the seismic velocities in the earth's mantle, *Geophys. J. R. Astron. Soc.*, **77**, 667–681, 1984.
- Lee, R. C., and L. R. Johnson, Tau estimates for mantle P and S waves from global travel time observations, *Geophys. J. R. Astron. Soc.*, **77**, 655–666, 1984.
- Lee, V. W., Recent developments in data processing of strong-motion accelerograms, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 119–126, San Francisco, CA, 1984.
- Lee, V. W., Three-dimensional diffraction of plane P , SV , and SH waves by a hemispherical alluvial valley, *Soil Dynamics and Earthquake Engin.*, **3**, 133–144, 1984.
- Lee, V. W., and M. D. Trifunac, EQUINFOS (the strong-motion earthquake data information system), *Rep. 82-01*, 52 pp., Dept. Civil Engin., Univ. So. Calif., Los Angeles, CA, 1982.
- Lee, V. W., and M. D. Trifunac, Current developments in data processing of strong motion accelerograms, *Rep. 84-01*, 99 pp., Dept. Civil Engin., Univ. So. Calif., Los Angeles, CA, 1984.
- Lee, V. W., and M. D. Trifunac, Attenuation of Modified Mercalli Intensity for small epicentral distance in California, *Rep. 85-01*, 21 pp., Dept. Civil Engin., Univ. So. Calif., Los Angeles, CA, 1985.
- Lee, V. W., and M. D. Trifunac, Torsional accelerograms, *Soil Dynamics and Earthquake Engin.*, **4**, 132–139, 1985.
- Lee, V. W., and M. D. Trifunac, A note on time of maximum response of a single degree of freedom oscillator to earthquake excitation, *Soil Dynamics and Earthquake Engin.*, **5**, 119–129, 1986.
- Lee, V. W., M. D. Trifunac, and A. Amini, Noise in earthquake accelerograms, *J. Engin. Mech. Div., Am. Soc. Civil Engin.*, **108**, 1121–1129, 1982.
- Lee, W. H. K., K. Aki, B. Chouet, P. Johnson, S. Marks, J. T. Newberry, A. S. Ryall, S. W. Stewart, and D. M. Tottingham, A preliminary study of coda Q in California and Nevada, *Bull. Seismol. Soc. Am.*, **76**, 1143–1150, 1986.
- Lees, A. C., M. S. T. Bukowinski, and R. Jeanloz, Reflection properties of phase transition and compositional change models of the 670-km discontinuity, *J. Geophys. Res.*, **88**, 8145–8159, 1983.
- LeFevre, L. V., and D. V. Helmberger, Variations in upper mantle P wave velocity beneath North America, *Eos (Trans. Amer. Geophys. Un.)*, **65**, 234, 1984.
- LeFevre, L. V., and K. C. McNally, Stress distribution and subduction of aseismic ridges in the Middle America subduction zone, *J. Geophys. Res.*, **90**, 4495–4510, 1985.
- Leith, W., and D. W. Simpson, Earthquakes related to active salt doming near Kulyab,

- Tadzhikistan, USSR, *Geophys. Res. Lett.*, 13, 1019-1022, 1986.
- Leith, W., and D. W. Simpson, Seismic domains within the Gissar-Kokshal seismic zone, Soviet Central Asia, *J. Geophys. Res.*, 91, 689-699, 1986.
- Lerche, I., and W. Menke, An inversion method for separating apparent and intrinsic attenuation in layered media, *Geophys. J. R. Astron. Soc.*, 87, 333-347, 1986.
- Lerner-Lam, A. L., The structure of the oceanic lithosphere from anisotropic inversion of surface and body waveforms, *Eos (Trans. Amer. Geophys. Un.)*, 67, 302, 1986.
- Lerner-Lam, A. L., and T. H. Jordan, Earth structure from fundamental and higher-mode waveform analysis, *Geophys. J. R. Astron. Soc.*, 75, 759-797, 1983.
- Lerner-Lam, A. L., and T. H. Jordan, How thick are the continents?, *J. Geophys. Res.*, in press, 1986.
- Lettis, W. R., Late Cenozoic stratigraphy and structure of the west margin of the central San Joaquin Valley, California, in *Soils and Quaternary Geology of the Southwestern United States*, edited by D. L. Weide, pp. 97-114, *Geol. Soc. Am. Spec. Pap. 203*, 1985.
- Lettis, W. R., Late Cenozoic structure of the Diablo range foothills near Los Banos, California, in *Proc. of Workshop XXVII, Mechanics of the May 2, 1983, Coalinga Earthquake*, edited by M. J. Rymer and W. L. Ellsworth, pp. 376-385, *U.S. Geol. Surv. Open-File Rep. 85-44*, 1985.
- Levander, A. R., Use of the telegraphy equation to improve absorbing boundary efficiency for fourth-order acoustic wave finite difference schemes, *Bull. Seismol. Soc. Am.*, 75, 1847-1852, 1985.
- Levander, A. R., and N. R. Hill, P-SV resonances in irregular low-velocity surface layers, *Bull. Seismol. Soc. Am.*, 75, 847-864, 1985.
- Levander, A. R., H. Quin, and R. L. Kovach, Shear wave observations in the region north of the San Francisco bay, *Bull. Seismol. Soc. Am.*, 73, 1031-1039, 1983.
- Li, T. M. C., J. F. Ferguson, E. Herrin, and H. B. Durham, High-frequency seismic noise at Lajitas, Texas, *Bull. Seismol. Soc. Am.*, 74, 2015-2033, 1984.
- Li, V. C., and N. Fares, Rupture processes in the presence of creep zones, in *Earthquake Source Mechanics, Maurice Ewing Ser.*, vol. 6, edited by S. Das et al., pp. 71-80, AGU, Washington, DC, 1986.
- Li, V. C., and C. Kisslinger, Stress transfer and nonlinear stress accumulation at subduction-type plate boundaries—application to the Aleutians, *Pageoph.*, 122, 812-830, 1984/85.
- Li, V. C., and J. R. Rice, Precursory surface deformation in great plate boundary earthquake sequences, *Bull. Seismol. Soc. Am.*, 73, 1415-1434, 1983.
- Li, V. C., and J. R. Rice, Preseismic rupture progression and great earthquake instabilities at plate boundaries, *J. Geophys. Res.*, 88, 4231-4246, 1983.
- Lide, C. S., and A. S. Ryall, Aftershock distribution related to the controversy regarding mechanisms of the May 1980, Mammoth Lakes, California, earthquakes, *J. Geophys. Res.*, 90, 11151-11154, 1985.
- Lienkaemper, J. J., Comparison of two surface-wave magnitude scales: M of Gutenberg and Richter (1954) and M_s of preliminary determination of epicenters, *Bull. Seismol. Soc. Am.*, 74, 2357-2378, 1984.
- Lillie, R. J., Tectonic implications of subthrust structures revealed by seismic profiling of Appalachian-Ouachita orogenic belt, *Tectonics*, 3, 619-646, 1984.
- Lillie, R. J., Tectonically buried continent/ocean boundary, Ouachita Mountains, Arkansas, *Geology*, 13, 18-21, 1985.
- Lillie, R. J., and M. Yousuf, Modern analogs for some midcrustal reflections observed beneath collisional mountain belts, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 55-65, AGU Geodynamics Series, Washington, DC, 1986.
- Lillie, R. J., K. D. Nelson, B. De Voogd, J. A. Brewer, J. E. Oliver, L. D. Brown, S. Kaufman, and G. W. Viele, Crustal structure of Ouachita Mountains, Arkansas: a model based on integration of COCORP reflection profiles and regional geophysical data, *Bull. Am. Assn. Petrol. Geologists*, 67, 907-931, 1983.
- Lindh, A. G., Preliminary assessment of long-term probabilities for large earthquakes along selected fault segments of the San Andreas fault system in California, *U.S. Geol. Surv. Open-File Rep. 83-63*, 14 pp., 1983.
- Linker, M. F., J. O. Langbein, and A. McGarr, Decrease in deformation rate observed by two-color laser ranging in Long Valley caldera, *Science*, 232, 213-216, 1986.
- Lipman, P. W., J. P. Lockwood, R. T. Okamura, D. A. Swanson, and K. M. Yamashita, Ground deformation associated with the 1975 magnitude-7.2 earthquake and resulting changes in activity of Kilauea volcano,

- Hawaii, U.S. Geol. Surv. Prof. Pap., 1276, 48 p., 1985.
- Lister, C. R. B., On the intermittency and crystallization mechanisms of sub-seafloor magma chambers, *Geophys. Res. Lett.*, 73, 351–365, 1983.
- Little, S. A., and R. A. Stephen, Costa Rica rift borehole seismic experiment, Deep Sea Drilling Project Hole 504B, Leg 92, *Initial Reports of the Deep Sea Drilling Project*, 83, 517–528, 1985.
- Liu, C., Zhu, T., H. Farmer, and L. Brown, An expanding spread experiment during COCORP's field operation in Utah, in *Reflection Seismology: A Global Perspective*, vol. 13, edited by M. Barazangi and L. Brown, pp. 237–246, AGU Geodynamics Series, Washington, DC, 1986.
- Liu, H.-L., and T. Heaton, Array analysis of the ground velocities and accelerations from the 1971 San Fernando, California, earthquake, *Bull. Seismol. Soc. Am.*, 74, 1951–1968, 1984.
- Liu, H.-L., and D. V. Helmberger, The near-source ground motion of the 6 August 1979 Coyote Lake, California, earthquake, *Bull. Seismol. Soc. Am.*, 73, 201–218, 1983.
- Liu, H.-L., and D. V. Helmberger, The 23:19 aftershock of the 15 October 1979 Imperial Valley earthquake: more evidence for an asperity, *Bull. Seismol. Soc. Am.*, 75, 689–708, 1985.
- Lockner, D. A., M. J. S. Johnston, and J. D. Byerlee, A mechanism to explain the generation of earthquake lights, *Nature*, 302, 28–33, 1983.
- Lockwood, J. P., N. G. Banks, T. English, L. P. Greenland, and D. B. Jackson, The 1984 eruption of Mauna Loa volcano, Hawaii, *Eos (Trans. Amer. Geophys. Un.)*, 66, 169–171, 1985.
- Loh, C. H., J. Penzien, and Y. B. Tsai, Engineering analyses of SMART 1 array accelerograms, *Earthquake Engin. and Structural Dynamics*, 10, 575–591, 1982.
- Lomnitz-Adler, J., Asperity models and characteristic earthquakes, *Geophys. J. R. Astron. Soc.*, 83, 435–450, 1985.
- Lomnitz, C., and M. Hashizume, The Popayan, Colombia, earthquake of 31 March 1983, *Bull. Seismol. Soc. Am.*, 75, 1315–1326, 1985.
- Loper, D. E., The dynamical structures of D'' and deep plumes in a non-Newtonian mantle, *Phys. Earth Planet. Inter.*, 34, 57–67, 1984.
- Loper, D. E., and D. R. Fearn, A seismic model of a partially molten inner core, *J. Geophys. Res.*, 88, 1235–1242, 1983.
- Loper, D. E., and F. D. Stacey, The dynamical and thermal structure of deep mantle plumes, *Phys. Earth Planet. Inter.*, 33, 304–317, 1983.
- Louie, J. N., C. R. Allen, D. C. Johnson, P. C. Haase, and S. N. Cohn, Fault slip in southern California, *Bull. Seismol. Soc. Am.*, 75, 811–833, 1985.
- Lu, I. T., and L. B. Felsen, Intrinsic modes in a wedge-shaped ocean with stratified elastic bottom, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 11–20, Plenum Press, NY, 1986.
- Lubetkin, L., and M. M. Clark, Late Quaternary activity along the Lone Pine fault, eastern California, in *Proc. of Workshop XXVIII, On the Borah Peak, Idaho, Earthquake*, vol. A, edited by R. S. Stein and R. C. Bucknam, pp. 118–140, U.S. Geol. Surv. Open-File Rep. 85-290, 1985.
- Luco, J. E., On strong ground motion estimates based on models of the radiated spectrum, *Bull. Seismol. Soc. Am.*, 75, 641–649, 1985.
- Luco, J. E., and J. G. Anderson, Steady-state response of an elastic half-space to a moving dislocation of finite width, *Bull. Seismol. Soc. Am.*, 73, 1–22, 1983.
- Luco, J. E., and J. G. Anderson, Near-source ground motion from kinematic fault models, in *Strong Ground Motion Simulations and Earthquake Engineering Applications*, Publ. 85-02, edited by R. E. Scholl and J. L. King, pp. 18-1–18-20, Earthquake Engin. Res. Inst., El Cerrito, CA, 1985.
- Luco, J. E., and R. J. Apsel, On the Green's functions for a layered half-space, Part I, *Bull. Seismol. Soc. Am.*, 73, 909–929, 1983.
- Luco, J. E., and D. A. Sotiropoulos, On a decomposition of near-source earthquake ground motion, *Soil Dynamics and Earthquake Engin.*, 4, 210–220, 1985.
- Ludwig, W. J., Seismic evidence for carbonate buildups at the northern edge of the Maurice Ewing bank, Falkland plateau, *Initial Reports of the Deep Sea Drilling Project*, 71, 295–297, 1983.
- Luetgert, J. H., Lithospheric structure in the northern Appalachians from 1984 Maine–Quebec seismic refraction data (abs.), *Eos (Trans. Amer. Geophys. Un.)*, 66, 308, 1985.
- Luetgert, J. H., and W. D. Mooney, Crustal refraction profile of the Long Valley caldera, California, from the January 1983 Mammoth Lakes earthquake swarm, *Bull. Seismol. Soc. Am.*, 75, 211–221, 1985.
- Lynn, H. B., S. Quam, and G. A. Thompson, Depth migration and interpretation of the

- COCORP Wind River, Wyoming, seismic reflection data, *Geology*, 11, 462-469, 1983.
- Lynnes, C., and T. Lay, Defocussing of short period *P* waves by a high velocity anomaly beneath Pahute mesa, *Eos (Trans. Amer. Geophys. Un.)*, 65, 994, 1984.
- Lynnes, C. S., and L. J. Ruff, Source process and tectonic implications of the great 1975 North Atlantic earthquake, *Geophys. J. R. Astron. Soc.*, 82, 497-510, 1985.
- Lynnes, C. S., and L.J. Ruff, Use of the *PP* phase to study the earthquake source, *Geophys. Res. Lett.*, 12, 514-517, 1985.
- Lyzenga, G. A., and M. P. Golombek, North American-Pacific relative plate motion in southern California from interferometry, *Science*, 233, 1181-1183, 1986.
- Lyzenga, G. A., K. S. Wallace, J. L. Fanselow, A. Raefsky, and P. M. Groth, Tectonic motions in California inferred from very long baseline interferometry observations, 1980-1984, *J. Geophys. Res.*, 91, 9473-9487, 1986.
- Macdonald, K. C., Mid-ocean ridges: fine scale tectonic, volcanic and hydrothermal processes within the plate boundary zone, *Ann. Rev. Earth Planet. Sci.*, 10, 155-190, 1982.
- Machette, M. N., Calcic soils of the southwestern United States, in *Soils and Quaternary Geology of the Southwestern United States*, edited by D. L. Weide, pp. 1-21, *Geol. Soc. Am. Spec. Pap.* 203, 1985.
- Machette, M. N., History of Quaternary offset and paleoseismicity along the La Jencia fault, central Rio Grande rift, New Mexico, *Bull. Seismol. Soc. Am.*, 76, 259-272, 1986.
- MacKenzie, K. R., Crustal stratigraphy and realistic seismic data, Ph.D. thesis, Univ. of Calif., San Diego, CA, 1984.
- MacKenzie, K., and J. Orcutt, Fine structure of the oceanic Moho, *Eos (Trans. Amer. Geophys. Un.)*, 63, 1026, 1982.
- Mahdyar, M., S. K. Singh, and R. P. Meyer, Moment magnitude scale for local earthquakes in the Petatlan region, Mexico, based on recorded peak horizontal velocity, *Bull. Seismol. Soc. Am.*, 76, 1225-1239, 1986.
- Main, I. G., and P. W. Burton, Physical links between crustal deformation, seismic moment and seismic hazard for regions of varying seismicity, *Geophys. J. R. Astron. Soc.*, 79, 469-488, 1984.
- Main, I. G., and P. W. Burton, Long-term earthquake recurrence constrained by tectonic seismic moment release rates, *Bull. Seismol. Soc. Am.*, 76, 259-271, 1986.
- Mal, A. K., On the theoretical calculation of ground motion for engineering applications, in *Strong Ground Motion Simulation and Earthquake Engineering Applications, Publ. 85-02*, edited by R. E. Scholl and J. L. King, pp. 17-1-17-7, Earthquake Engin. Res. Inst., El Cerrito, CA, 1985.
- Malde, H. E., Quaternary faulting near Arco and Howe, Idaho, in *Proc. of Workshop XXVIII, On the Borah Peak, Idaho, Earthquake*, vol. A., edited by R. S. Stein and R. C. Bucknam, pp. 207-235, *U.S. Geol. Surv. Open-File Rep. 85-290*, 1985.
- Maley, R. P., and E. C. Etheredge, The development of ground and structural response strong-motion instrumentation arrays in the United States, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 31-38, San Francisco, CA, 1984.
- Maley, R., G. Brady, E. Etheredge, D. Johnson, P. Mork, and J. Switzer, Analog strong motion data and processed main event records obtained by U.S. Geological Survey near Coalinga, California, in *The Coalinga Earthquake Sequence Commencing May 2, 1983*, pp. 38-60, *U.S. Geol. Surv. Open-File Rep. 83-511*, 1983.
- Maley, R., E. C. Etheredge, D. A. Johnson, J. C. Switzer, P. N. Mork, and A. G. Brady, Strong motion data recorded near Coalinga, California (May 2, 1983) and processed data from May 2 and May 9, 1983, *U.S. Geol. Surv. Open-File Rep. 84-626*, 258 pp., 1984.
- Maley, R. P., E. C. Etheredge, and A. Acosta, U.S. Geological Survey strong-motion records from the Chalfant Valley, California, earthquake of July 21, 1986, *U.S. Geol. Surv. Open-File Rep. 86-568*, 19 pp., 1986.
- Malin, P. E., and R. A. Phinney, On the relative scattering of *P*- and *S*-waves, *Geophys. J. R. Astron. Soc.*, 80, 603-618, 1985.
- Malin, P. E., and J. A. Waller, Preliminary results from vertical seismic profiling of Oroville microearthquake *S*-waves, *Geophys. Res. Lett.*, 12, 137-140, 1985.
- Malone, S. D., Volcanic earthquakes: examples from Mount St. Helens, in *Earthquakes: Observation, Theory, and Interpretation, Proc. Intnati. School Phys. LXXXV*, edited by H. Kanamori and E. Boschi, pp. 436-455, North-Holland, Amsterdam, NY, 1983.
- Malone, S. D., C. Boyko, and C. S. Weaver, Seismic precursors to the Mount St. Helens eruptions in 1981 and 1982, *Science*, 221, 1376-1378, 1983.
- Mann, P., and K. Burke, Neotectonics of the Caribbean, *Rev. Geophys.*, 22, 309-362, 1984.

- Mann, P., K. Burke, and T. Matumoto, Neotectonics of Hispaniola: plate motion, sedimentation, and seismicity at a restraining bend, *Earth Planet. Sci. Lett.*, **70**, 311-324, 1984.
- Marciano, E. A., and D. J. Elton, Characteristics of the ground motions of the Charleston, South Carolina, earthquake, in *Proc. of 3rd U.S. Nat. Conf. on Earthquake Engin.*, vol. 1, pp. 327-332, Charleston, SC, 1986.
- Markewich, H. W., Geomorphic evidence for Pliocene-Pleistocene uplift in the area of the Cape Fear Arch, North Carolina, in *Tectonic Geomorphology*, *Proc. of the 15th Annual Binghamton Geomorphology Symposium*, edited by M. Morisawa and J. T. Hack, pp. 279-297, Allen and Unwin, Boston, MA, 1985.
- Marsh, G. E., Threshold Test Ban Treaty: no evidence of cheating, *Bull. Atomic Sci.*, pp. 4, March 1983.
- Marthelot, J.-M., J.-L. Chatelain, B. L. Isacks, R. K. Cardwell, and E. Coudert, Seismicity and attenuation in the central Vanuatu (New Hebrides) Islands: a new interpretation of the effect of subduction of the D'entrecasteaux fracture zone, *J. Geophys. Res.*, **90**, 8641-8650, 1985.
- Masri, S. F., R. K. Miller, and I. Traina, Description and representation of earthquake ground motion records, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 533-540, San Francisco, CA, 1984.
- Masters, G., and F. Gilbert, Attenuation in the earth at low frequencies, *Philos. Trans. R. Soc. London, Ser. A*, **308**, 479-522, 1983.
- Masters, G., and F. Gilbert, Spheroidally averaged structure from free oscillation data, *Eos (Trans. Amer. Geophys. Un.)*, **66**, 966, 1985.
- Masters, G., T. H. Jordan, P. G. Silver, and F. Gilbert, Aspherical earth structure from fundamental spheroidal-mode data, *Nature*, **298**, 609-613, 1982.
- Masters, G., J. Park, and F. Gilbert, Observations of coupled spheroidal and toroidal modes, *J. Geophys. Res.*, **88**, 10285-10298, 1983.
- Matsu'ura, M., D. D. Jackson, and A. Cheng, Dislocation model for aseismic crustal deformation at Hollister, California, *J. Geophys. Res.*, **91**, 12661-12674, 1986.
- Matti, J. C., D. M. Morton, and B. F. Cox, Distribution and geologic relations of fault systems in the vicinity of the central Transverse ranges, southern California, *U.S. Geol. Surv. Open-File Rep. 85-365*, 23 pp., 1985.
- Mavko, B. B., and G. A. Thompson, Crustal and upper mantle structure of the northern and central Sierra Nevada, *J. Geophys. Res.*, **88**, 5874-5892, 1983.
- Mavko, G. M., Fault interaction near Hollister, California, *J. Geophys. Res.*, **87**, 7807-7816, 1982.
- Mavko, G. M., and E. Harp, Analysis of wave-induced pore pressure changes recorded during the 1980 Mammoth Lakes, California, earthquake sequence, *Bull. Seismol. Soc. Am.*, **74**, 1395-1407, 1984.
- Mavko, G. M., S. Schulz, and B. D. Brown, Effects of the 1983 Coalinga, California, earthquake on creep along the San Andreas fault, *Bull. Seismol. Soc. Am.*, **75**, 475-489, 1985.
- Mawer, C. K., and P. F. Williams, Crystalline rocks as possible paleoseismicity indicators, *Geology*, **13**, 100-102, 1985.
- Mayer, J. R., and L. D. Brown, Signal penetration in the COCORP Basin and Range-Colorado plateau survey, *Geophysics*, **51**, 1050-1055, 1986.
- Mayer, L., Dating Quaternary fault scarps formed in alluvium using morphologic parameters, *Quaternary Research*, **22**, 300-313, 1984.
- Mayer, L., Tectonic geomorphology of the Basin and Range Colorado plateau boundary in Arizona, in *Tectonic Geomorphology*, *Proc. of the 15th Annual Binghamton Geomorphology Symposium*, edited by M. Morisawa and J. T. Hack, pp. 235-259, Allen and Unwin, Boston, MA, 1985.
- Mayer, L., Tectonic geomorphology of escarpments and mountain fronts, in *Active Tectonics*, pp. 125-135, National Academy Press, Washington, DC, 1986.
- Mayer, L. D., T. H. Shipley, and E. L. Winterer, Equatorial Pacific seismic reflectors as indicators of global oceanographic events, *Science*, **233**, 761-764, 1986.
- McCaffrey, R., and J. Nábělek, The geometry of back arc thrusting along the eastern Sunda arc, Indonesia: constraints from earthquake and gravity data, *J. Geophys. Res.*, **89**, 6171-6179, 1984.
- McCaffrey, R., and J. Nábělek, Seismological evidence for shallow thrusting north of the Timor trough, *Geophys. J. R. Astron. Soc.*, **85**, 365-381, 1986.
- McCaffrey, R., P. Molnar, and S. W. Roecker, Microearthquake seismicity and fault plane solutions related to arc-continent collision in the eastern Sunda arc, Indonesia, *J. Geophys. Res.*, **90**, 4511-4528, 1985.

- McCammon, D. F., and S. T. McDaniel, Mode coupling from subbottom roughness, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 407-414, Plenum Press, NY, 1986.
- McCann, M. W., Jr., and D. M. Boore, Variability in ground motions: root mean square acceleration and peak acceleration for the 1971 San Fernando, California, earthquake, *Bull. Seismol. Soc. Am.*, 73, 615-632, 1983.
- McCann, M. W., Jr., and H. Echezuria, Investigating the uncertainty in ground motion prediction, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 297-304, San Francisco, CA, 1984.
- McCann, W. R., On the earthquake hazards of Puerto Rico and the Virgin Islands, *Bull. Seismol. Soc. Am.*, 75, 251-262, 1985.
- McCann, W. R., and L. R. Sykes, Subduction of aseismic ridges beneath the Caribbean plate: implications for the tectonics and seismic potential of the northeastern Caribbean, *J. Geophys. Res.*, 89, 4493-4519, 1984.
- McCann, W. R., and L. R. Sykes, Reply, *J. Geophys. Res.*, 91, 787-791, 1986.
- McCarthy, J., Reflection profiles from the Snake range metamorphic core complex: a window into the mid-crust, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 281-292, AGU Geodynamics Series, Washington, DC, 1986.
- McCarthy, J., and D. W. Scholl, Mechanisms of subduction accretion along the central Aleutian trench, *Geol. Soc. Am. Bull.*, 96, 691-701, 1985.
- McCarthy, J., G. S. Fuis, and K. Howard, Seismic-refraction studies across the Whipple Mountains, CA: a progress report from the Pacific-Arizona crustal experiment (PACE), *Geol. Soc. Am. Abstr. Programs*, 18, 155, 1986.
- McCarthy, J., G. Fuis, and J. Wilson, Crustal structure of the Whipple Mountain metamorphic core complex, *Geophys. J. R. Astron. Soc.*, in press, 1987.
- McClain, J. S., On long-term thickening of the oceanic crust, *Geophys. Res. Lett.*, 8, 1191-1194, 1981.
- McClain, J. S., and C. A. Atallah, The structure of young oceanic crust near a very fast spreading ridge, *Geophys. Res. Lett.*, 12, 689-692, 1985.
- McClain, J. S., and C. A. Atallah, Thickening of the oceanic crust with age, *Geology*, 14, 574-576, 1986.
- McClain, J. S., J. A. Orcutt, and M. Burnett, The east Pacific rise in cross section: a seismic model, *J. Geophys. Res.*, 90, 8627-8639, 1985.
- McClure, H. A., and C. Vita-Finzi, Holocene shorelines and tectonic movements in eastern Saudi Arabia, *Tectonophysics*, 85, T37-T44, 1983.
- McCowan, D. W., P. L. Stoffa, and J. B. Diebold, Fan filters for data with variable spatial sampling, *IEEE Trans. Acoustics, Speech and Signal Processing*, ASSP-32, 1154-1159, 1985.
- McCoy, J. J., and L. N. Frazer, A propagation model for range-dependent transversely inhomogeneous media, *Geophys. J. R. Astron. Soc.*, in press, 1986.
- McCoy, J. J., L. Fishman, and L. N. Frazer, Range dependent propagation codes based on wave field factorization and invariant embedding, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 39-46, Plenum Press, NY, 1986.
- McCoy, J. J., L. Fishman, and L. N. Frazer, Reflection and transmission at an interface separating transversely inhomogeneous acoustic half spaces, *Geophys. J. R. Astron. Soc.*, 85, 543-562, 1986.
- McDaniel, S. T., and D. F. McCammon, Effect of sub-bottom inhomogeneities on shallow water spatial coherence, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 397-405, Plenum Press, NY, 1986.
- McEvilly, T. V., and S. A. Alexander, Imaging the Earth's interior: detailed studies of the Earth and of the seismic source with new global and transportable arrays, *Proposal EAR84-19419 to the Natl. Sci. Found.*, IRIS, Inc., Washington, DC, 1984.
- McFadden, L. D., and J. C. Tinsley, Rate and depth of pedogenic-carbonate accumulation in soils: formulation and testing of a compartment model, in *Soils and Quaternary Geology of the Southwestern United States*, edited by D. L. Weide, pp. 23-41, *Geol. Soc. Am. Spec. Pap.* 203, 1985.
- McGarr, A., Scaling of ground motion parameters, state of stress, and focal depth, *J. Geophys. Res.*, 89, 6969-6979, 1984.
- McGarr, A., Some observations indicating complications in the nature of earthquake scaling, in *Earthquake Source Mechanics, Maurice Ewing Ser.*, vol. 6, edited by S. Das et al., pp. 217-225, AGU, Washington, DC, 1986.
- McGarr, A., M. D. Zoback, and T. C. Hanks, Implications of an elastic analysis of *in situ*

- stress measurements near the San Andreas fault, *J. Geophys. Res.*, 87, 7797-7806, 1982.
- McGarr, A., C. Mueller, J. B. Fletcher, and M. Andrews, Ground motion parameters of the 1983 Coalinga, California earthquakes: implications for crustal strength, in *Proc. of Workshop XXVII, Mechanics of the May 2, 1983 Coalinga Earthquake*, edited by M. J. Rymer and W. L. Ellsworth, pp. 254-275, U.S. Geol. Surv. Open-File Rep. 85-44, 1985.
- McGarr, A., C. Mueller, J. B. Fletcher, and M. Andrews, Ground motion and source parameters of the 1983 Coalinga, California earthquake sequence, *U.S. Geol. Surv. Prof. Pap.*, in press, 1986.
- McGinnis, L. D., R. H. Bowen, J. M. Erickson, B. J. Allred, and J. L. Kreamer, East-west Antarctic boundary in the McMurdo sound, *Tectonophysics*, 114, 341-356, 1985.
- McGuire, R. K., Ground motion estimation in regions with few data, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 327-334, San Francisco, CA, 1984.
- McGuire, R. K., A note on interpreting uncertainties in ground motion estimation, in *Strong Ground Motion Simulation and Earthquake Engineering Applications*, Publ. 85-02, edited by R. E. Scholl and J. L. King, pp. 28-1-28-4, Earthquake Engin. Res. Inst., El Cerrito, CA, 1985.
- McGuire, R. K., A. M. Becker, and N. C. Donovan, Spectral estimates of seismic shear waves, *Bull. Seismol. Soc. Am.*, 74, 1427-1440, 1984.
- McJunkin, R. D., and A. F. Shakal, The Parkfield strong-motion array, *Calif. Geol.*, 36, 27-34, 1983.
- McJunkin, R. D., A. F. Shakal, and N. A. Kaliakin, Strong-motion records recovered from the Mammoth Lakes, California, earthquakes of 6 January 1983, *Rep. OSMS 83-1*, 31 pp., Office of Strong Motion Studies, Calif. Div. Mines and Geol., Sacramento, CA, 1983.
- McLaughlin, K. L., Evaluation of small events using the Pearce focal plane algorithm, Annual Report to Defense Advanced Research Projects Agency, Teledyne-Geotech, TGAL-85-11a, Alexandria, VA, 7 pp., 1985.
- McLaughlin, K. L., Network magnitude variation and magnitude bias, *Bull. Seismol. Soc. Am.*, 76, 1813-1816, 1986.
- McLaughlin, K. L., L. R. Johnson, and T. V. McEvilly, Two dimensional array measurements of near-source ground accelerations, *Bull. Seismol. Soc. Am.*, 73, 349-375, 1983.
- McLaughlin, R. J., K. R. Lajoie, D. H. Sorg, S. D. Morrison, and J. A. Wolfe, Tectonic uplift of a middle Wisconsin marine platform near the Mendocino triple junction, California, *Geology*, 11, 35-39, 1983.
- McMechan, G. A., and G. D. Spence, P-wave velocity structure of the earth's crust beneath Vancouver Island, *Canadian J. Earth Sci.*, 20, 742-752, 1983.
- McMechan, G. A., J. H. Luettgert, and W. D. Mooney, Imaging of earthquake sources in Long Valley caldera, California, 1983, *Bull. Seismol. Soc. Am.*, 75, 1005-1020, 1985.
- McMechan, G. A., J. B. Nation, and R. W. Ward, Two-dimensional synthetic seismogram modeling of wide-angle seismic data from the Wichita uplift, Oklahoma, *Bull. Seismol. Soc. Am.*, 75, 1699-1711, 1985.
- McNally, K. C., Variations in seismicity as a fundamental tool in earthquake prediction, *Bull. Seismol. Soc. Am.*, 72, S351-S366, 1982.
- McNally, K. C., J. R. Gonzales-Ruiz, and C. Stolte, Seismogenesis of the 1985 great ($M_s = 8.1$) Michoacan, Mexico earthquake, *Geophys. Res. Lett.*, 13, 585-588, 1986.
- McNeill, R. L., Some possible errors in recorded free-field ground motions, in *Proc. of Conf. XXII, A Workshop on "Site-Specific Effects of Soil and Rock on Ground Motion and the Implications for Earthquake-Resistant Design,"* edited by W. W. Hays, pp. 361-400, U.S. Geol. Surv. Open-File Rep. 83-845, 1983.
- McNutt, S. R., Observations and analysis of B-type earthquakes, explosions, and volcanic tremor at Pavlof volcano, Alaska, *Bull. Seismol. Soc. Am.*, 76, 153-176, 1986.
- McNutt, S. R., and R. J. Beavan, Patterns of earthquakes and the effect of solid earth and oceanic load tides at Mount St. Helens prior to the May 18, 1980, eruption, *J. Geophys. Res.*, 89, 3075-3086, 1984.
- McNutt, S. R., and S. H. Harlow, Seismicity at Fuego, Pacaya, Izalco, and San Cristobal volcanoes, Central America, *Bull. Volcan.*, 46, 281-297, 1983.
- McNutt, S. R., and K. H. Jacob, Determination of large-scale velocity structure of the crust and upper mantle in the vicinity of Pavlof volcano, Alaska, *J. Geophys. Res.*, 91, 5013-5022, 1986.
- McWhae, J. R., Tectonic history of northern Alaska, Canadian Arctic, and Spitsbergen regions since early Cretaceous, *Bull. Am. Assoc. Petrol. Geologists*, 67, 430-450, 1986.
- Medwin, H., Near grazing propagation over a low roughness hard ocean bottom, in *Ocean Seismo-Acoustics*, edited by T. Akal and J.

- M. Berkson, pp. 365–372, Plenum Press, NY, 1986.
- Meecham, W. C., Wave propagation in anisotropic media using Born series through 4th order, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 293–303, Plenum Press, NY, 1986.
- Meissner, R., The Continental Crust: A Geophysical Approach, *International Geophysics Series* 34, 426 pp., Academic Press, NY, 1986.
- Mellen, R. H., and D. G. Browning, Infrasonic attenuation and ambient noise, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 779–784, Plenum Press, NY, 1986.
- Meltzer, A. S., A. R. Leavander, and W. D. Mooney, Interpretation of seismic refraction profiles east of Livermore, CA, *Bull. Seismol. Soc. Am.*, in press, 1986.
- Mendoza, C., and J. W. Dewey, Seismicity associated with the great Columbia-Ecuador earthquakes of 1942, 1958, and 1979: implications for barrier models of earthquake rupture, *Bull. Seismol. Soc. Am.*, 74, 577–594, 1984.
- Menke, W., A formula for the apparent attenuation of acoustic waves in randomly layered media, *Geophys. J. R. Astron. Soc.*, 75, 541–544, 1983.
- Menke, W., On the effect of P-S coupling on the apparent attenuation of elastic waves in randomly layered media, *Geophys. Res. Lett.*, 10, 1145–1147, 1983.
- Menke, W., Asymptotic formulas for the apparent Q of weakly scattering three-dimensional media, *Bull. Seismol. Soc. Am.*, 74, 1079–1081, 1984.
- Menke, W., Effect of heterogeneities in D'' on the decay rate of Pdiff, *J. Geophys. Res.*, 91, 1927–1933, 1986.
- Menke, W., Few 2–50 km corrugations on the core-mantle boundary, *Geophys. Res. Lett.*, 13, 1501–1504, 1986.
- Menke, W., and R. Chen, Numerical studies of the coda falloff rate of multiply scattered waves in a randomly layered media, *Bull. Seismol. Soc. Am.*, 74, 1605–1621, 1984.
- Menke, W., and B. Dubendorff, Discriminating intrinsic and apparent attenuation in layered rock, *Geophys. Res. Lett.*, 12, 721–724, 1985.
- Menke, W., and P. G. Richards, The horizontal propagation of P waves through scattering media: analog model studies relevant to long-range Pn propagation, *Bull. Seismol. Soc. Am.*, 73, 125–142, 1983.
- Menke, W., D. Witte, and R. Chen, Laboratory test of apparent attenuation formulas, *Bull. Seismol. Soc. Am.*, 75, 1383–1393, 1985.
- Mento, D. J., C. P. Ervin, and L. D. McGinnis, Periodic energy release in the New Madrid seismic zone, *Bull. Seismol. Soc. Am.*, 76, 1001–1009, 1986.
- Mercier, J. L., E. Carey-Gailhardis, N. Mouyaris, K. Simeakis, and T. Roundoyannis, Structural analysis of recent and active faults and regional state of stress in the epicentral area of the 1978 Thessaloniki earthquakes (northern Greece), *Tectonics*, 2, 577–600, 1983.
- Mereu, R. F., An interpretation of the central California profiles for the CCSS Shizooka Workshop, *U.S. Geol. Surv. Open-File Rep.* 87-73, 132 pp., 1987.
- Mereu, R., D. Wang, and O. Kuhn, Evidence for an inactive rift in the Precambrian from a wide-angle reflection survey across the Ottawa-Bonnechere graben, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 127–134, AGU Geodynamics Series, Washington, DC, 1986.
- Mereu, R. F., D. Wang, O. Kuhn, D. A. Forsyth, A. G. Green, P. Morel, G. G. R. Buchbinder, D. Crossley, E. Schwarz, R. duBerger, C. Brooks, and R. Clowes, The 1982 COCRUST seismic experiment across the Ottawa-Bonnechere graben and Grenville front in Ontario and Quebec, *Geophys. J. R. Astron. Soc.*, 84, 491–514, 1986.
- Merifield, P. M., and D. L. Lamar, Possible strain events reflected in water levels in wells along the San Jacinto fault zone, southern California, *Pageoph.*, 122, 245–254, 1984/85.
- Michael, A. J., Determination of stress from slip data: faults and folds, *J. Geophys. Res.*, 89, 11517–11526, 1984.
- Michaelson, C. A., and C. S. Weaver, Upper mantle structure from teleseismic P wave arrivals in Washington and northern Oregon, *J. Geophys. Res.*, 91, 2077–2094, 1985.
- Michelini, A., and B. A. Bolt, Application of the principal parameters method to the 1983 Coalinga, California aftershock sequence, *Bull. Seismol. Soc. Am.*, 76, 409–420, 1986.
- Milkereit, B., W. D. Mooney, and W. M. Kohler, Inversion of seismic refraction data in planar dipping structure, *Geophys. J. R. Astron. Soc.*, 82, 81–103, 1985.
- Miller, J., A. Nagi, and H. Uberall, Influence of bottom refraction on the propagation of underwater sound, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 6773, Plenum Press, NY, 1986.

- Minster, J. B., and S. M. Day, Decay of wave fields near an explosive source due to high-strain nonlinear attenuation, *J. Geophys. Res.*, **91**, 2113–2122, 1986.
- Minster, J. B., and R. C. Goff, Strategies for the design of a data management system, report, Science Horizons, Inc., Encinitas, CA, 1986.
- MIT Field Geophysics Course, A geophysical study of Mesquite Valley: Nevada-California border, *J. Geophys. Res.*, **90**, 8685–8689, 1985.
- Mitchell, B. J., On the inversion of Love and Rayleigh wave dispersion and implications for earth structure and anisotropy, *Geophys. J. R. Astron. Soc.*, **76**, 233–241, 1984.
- Mitchell, B., and G. Yu, Surface wave dispersion, regionalized velocity models, and anisotropy of the Pacific crust and upper mantle, *Geophys. J. R. Astron. Soc.*, **63**, 497–514, 1980.
- Moeen-Vaziri, N., and M. D. Trifunac, Investigation of scattering and diffraction of plane seismic waves through two dimensional inhomogeneities, *Rep. 86-03*, 252 pp., Dept. Civil Engin., Univ. So. Calif., Los Angeles, CA, 1986.
- Molnar, P., Average regional strain due to slip on numerous faults of different orientation, *J. Geophys. Res.*, **88**, 6430–6432, 1983.
- Molnar, P., Structure and tectonics of the Himalaya: constraints and implications of geophysical data, *Ann. Rev. Earth and Planet. Sci.*, **12**, 489–518, 1984.
- Molnar, P., and W.-P. Chen, Focal depths and fault plane solutions of earthquakes under the Tibetan plateau, *J. Geophys. Res.*, **88**, 1180–1196, 1983.
- Molnar, P., and W.-P. Chen, S-P wave travel time residuals and lateral inhomogeneity in the mantle beneath Tibet and the Himalaya, *J. Geophys. Res.*, **89**, 6911–6917, 1984.
- Molnar, P., and D. Qidong, Faulting associated with large earthquakes and the average rate of deformation in central and eastern Asia, *J. Geophys. Res.*, **89**, 6203–6228, 1984.
- Mooney, W. D., and T. M. Brocher, Coincident seismic reflection and refraction measurements of the continental lithosphere: a global review, *Rev. of Geophys.*, *in press*, 1987.
- Mooney, W. D., and R. Colburn, A seismic refraction profile across the San Andreas, Sargent, and Calaveras faults, west-central California, *Bull. Seismol. Soc. Am.*, **75**, 175–191, 1985.
- Mooney, W. D., and A. Ginzburg, Seismic measurements of the internal properties of fault zones, *PAGEOPH*, **124**, 141–157, 1986.
- Mooney, W. D., and C. Prodehl, Proceedings of the 1980 Workshop of the IASPEI on the Seismic Modeling of Laterally Varying Structures: Contributions Based on Data from the 1978 Saudi Arabian Refraction Profile, edited by W. D. Mooney and C. Prodehl, 158 pp. *U.S. Geol. Surv. Circular 937*, 1984.
- Mooney, W. D., M. C. Andrews, A. Ginzburg, D. A. Peters, and R. M. Hamilton, Crustal structure of the northern Mississippi embayment and a comparison with other continental rift zones, *Tectonophysics*, **94**, 327–348, 1983.
- Mooney, W. D., M. E. Gettings, H. R. Blank, and J. H. Healy, Saudi Arabian seismic-refraction profile: a traveltimes interpretation of crustal and upper mantle structure, *Tectonophysics*, **111**, 173–246, 1985.
- Moore, J. G., and D. J. Fornari, Drowned reefs as indicators of the rate of subsidence of the Island of Hawaii, *J. Geol.*, **92**, 752–760, 1984.
- Moores, E. M., Origin and emplacement of ophiolites, *Rev. Geophys.*, **20**, 735–760, 1982.
- Moores, E. M., J. S. McClain, and R. J. Varga, Detachment faulting at oceanic spreading centers: evidence from Troodos and oceanic crust, *G.S.A. Abstracts, Annual Meeting*, 1986.
- Moos, D., and Zoback, M. D., *In situ* studies of velocity in fractured crystalline rocks, *J. Geophys. Res.*, **88**, 2345–2358, 1983.
- Morelli, A., A. M. Dziewonski, and J. H. Woodhouse, Anisotropy of the inner core inferred from PKIKP travel times, *Geophys. Res. Lett.*, **13**, 1545–1548, 1986.
- Morgan, J. R., W. J. Hall, and N. M. Newmark, Seismic response arising from traveling waves, *J. Structural Div., Am. Soc. Civil Engin.*, **109**, 1010–1027, 1983.
- Mori, J., Dynamic stress drops of moderate earthquakes of the Eastern Aleutians and their relation to a great earthquake, *Bull. Seismol. Soc. Am.*, **73**, 1077–1097, 1983.
- Mori, J., Short- and long-period subevents of the 4 February 1965 Rat Islands earthquake, *Bull. Seismol. Soc. Am.*, **74**, 1331–1347, 1984.
- Mori, J., and K. Shimazaki, High stress drops of short-period subevents from the 1968 Tokachi-Oki earthquake as observed on strong-motion records, *Bull. Seismol. Soc. Am.*, **74**, 1529–1544, 1984.
- Moriwaki, Y., I. M. Idriss, and E. H. Doyle, Earthquake-induced deformations of soft clay slopes, *J. Geotech. Engin. Div., Am. Soc. Civil Engin.*, **108**, 1475–1493, 1982.
- Morner, N. A., Paleoseismicity and geodynamics in Sweden, *Tectonophysics*, **117**, 139–154, 1985.

- Morris, S. P., and R. J. Geller, Toroidal modes of a simple laterally heterogeneous sphere, *Bull. Seismol. Soc. Am.*, 72, 1155-1166, 1982.
- Morrison, H. F., and R. Fernandez, Temporal variations in the electrical resistivity of the Earth's crust, *J. Geophys. Res.*, 91, 11618-11628, 1986.
- Morton, J. L., Oceanic spreading centers: axial magma chambers, thermal structure and small scale ridge jumps, Ph.D. thesis, 101 pp., Stanford Univ., Stanford, CA, 1984.
- Morton, J. L., and N. H. Sleep, A mid-ocean ridge thermal model: constraints on the volume of axial hydrothermal heat flux, *J. Geophys. Res.*, 90, 11345-11353, 1985.
- Morton, J. L., and N. H. Sleep, A volatile-rich magma chamber beneath Valu Fa ridge, Lau basin: evidence from seismic reflection records, *Eos (Trans. Amer. Geophys. Un.)*, 66, 1076, 1985.
- Morton, J. L., and N. H. Sleep, Seismic reflections from a Lau basin magma chamber, in *Geology and Offshore Resources of Pacific Island Arcs-Tonga Region, Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, 2*, edited by D. W. Scholl and T. L. Vallier, p. 441, Am. Assoc. Pet. Geol., Tulsa, OK, 1985.
- Moslem, K., A. Amini, B. Kontic, J. G. Anderson, and T. H. Heaton, Accelerograms from the Mammoth Lakes, California earthquake sequence of May-July, 1980 recorded on a temporary array, *Rep. 83-01*, 64 pp., Dept. Civil Engin., Univ. So. Calif., Los Angeles, CA, 1983.
- Mueller, C. S., Finite faulting in three large Coalinga aftershocks, in *Proc. of Workshop XXVII, Mechanics of the May 2, 1983 Coalinga Earthquake*, edited by M. J. Rymer and W. L. Ellsworth, pp. 276-293, U.S. Geol. Surv. Open-File Rep. 83-44, 1985.
- Mueller, C. S., Source pulse enhancement by deconvolution of an empirical Green's function, *Geophys. Res. Lett.*, 12, 33-36, 1985.
- Mueller, C. S., and E. Cranswick, Source parameters from locally recorded aftershocks of the 9 January 1982 Miramichi, New Brunswick, earthquake, *Bull. Seismol. Soc. Am.*, 75, 337-360, 1985.
- Muirhead, K., and R. D. Adams, Earthquakes in the "aseismic" regions of the western Pacific, *Geophys. Res. Lett.*, 13, 173-176, 1986.
- Munguiá, L., and J. N. Brune, High stress drop events in the Victoria, Baja California earthquake swarm of 1978 March, *Geophys. J. R. Astron. Soc.*, 76, 725-752, 1984.
- Munguiá, L., and J. N. Brune, Local magnitude and sediment amplification observations from earthquakes in the Northern Baja California-Southern California region, *Bull. Seismol. Soc. Am.*, 74, 107-119, 1984.
- Munguiá, L., and J. N. Brune, Simulations of strong ground motion for earthquakes in the Mexicali-Imperial Valley region, *Geophys. J. R. Astron. Soc.*, 79, 747-771, 1984.
- Munguiá, L., and J. N. Brune, Simulations of strong ground motion for earthquakes in the Mexicali-Imperial Valley, in *Strong Ground Motion Simulation and Earthquake Engineering Applications, Publ. 85-02*, edited by R. E. Scholl and J. L. King, pp. 21-1-21-19, Earthquake Engin. Res. Inst., El Cerrito, CA, 1985.
- Munguiá, L., G. W. Simila, K. C. McNally, and H. Thompson, The September 19, 1985 Michoacan earthquake: aftershock acceleration data recorded by a temporary installation of strong motion instruments, *Geophys. Res. Lett.*, 13, 581-584, 1986.
- Munsey, J. W., and G. A. Bollinger, Focal mechanism analysis for Virginia earthquakes (1978-1984), *Bull. Seismol. Soc. Am.*, 75, 1613-1636, 1985.
- Murphy, J. R., Site effects on strong ground motion observed from underground nuclear explosions, in *Proc. of Conf. XXII, A Workshop on "Site-Specific Effects of Soil and Rock on Ground Motion and the Implications for Earthquake-Resistant Design,"* edited by W. W. Hays, pp. 80-88, U.S. Geol. Surv. Open-File Rep. 83-845, 1983.
- Murphy, J. R., and C. B. Archambeau, Variability in explosion body-wave magnitudes: an analysis of the Rulison/Gasbuggy anomaly, *Bull. Seismol. Soc. Am.*, 76, 1087-1113, 1986.
- Murphy, J. R., and T. J. Bennett, A discrimination analysis of short-period regional seismic data recorded at Tonto Forest Observatory, *Bull. Seismol. Soc. Am.*, 72, 1351-1366, 1982.
- Murtha, P. E., Seismic velocities in the upper part of the earth's core, Ph.D. thesis, 115 pp., Univ. Calif., Berkeley, CA, 1984.
- Murtha, P. E., and T. Tanimoto, An investigation of the 650 km discontinuity using $P'dP'$ reflection/transmission coefficients, *Eos (Trans. Amer. Geophys. Un.)*, 63, 1035, 1982.
- Musgrove, L. A., and J. A. Austin, Multichannel seismic reflection survey of the southeastern Angola basin, *Initial Reports of the Deep Sea Drilling Project*, 75, 1191-1209, 1984.

- Mustart, D. A., R. Sullivan, and R. Pestrong, Directional pattern of building displacement in the Coalinga earthquake, May 2, 1983, in *The 1983 Coalinga, California Earthquakes*, edited by J. H. Bennett and R. W. Sherburne, pp. 9-17, *Special Publ. 66*, Calif. Div. Mines and Geol., Sacramento, CA, 1983.
- Mutter, J. C., Structure with oceanic crust off the Norwegian margin, in *Seismic Expression of Structural Styles*, Amer. Assoc. Petrol. Geol., Studies in Geology Series #15, vol. 2, edited by A. W. Bally, 2.2.3-36-2.2.3-38, 1983.
- Mutter, J. C., Cenozoic and Late Mesozoic stratigraphy, structure and subsidence history of the Norwegian margin, *Geol. Soc. Amer. Bull.*, 95, 1135-1149, 1984.
- Mutter, J. C., Seaward dipping reflectors and the continent-ocean boundary at passive continental margins, *Tectonophysics*, 114, 117-131, 1985.
- Mutter, J. C., Seismic images of plate boundaries, *Scientific American*, 254, 66-76, 1986.
- Mutter, J. C., and NAT Study Group, Multichannel seismic images of the oceanic crust's internal structure: evidence for a magma chamber beneath the Mesozoic Mid-Atlantic ridge, *Geology*, 13, 629-632, 1985.
- Mutter, J. C., and R. Newmark, Seismic response of detailed structure at Site 504-B: synthetic seismogram modeling, *Initial Reports of the Deep Sea Drilling Project*, 84, in press, 1986.
- Mutter, J. C., R. S. Detrick, and NAT Study Group, Multichannel seismic evidence for anomalously thin crust at Blake Spur fracture zone, *Geology*, 12, 534-537, 1984.
- Mutter, J. C., M. Talwani, and P. L. Stoffa, Evidence for a thick oceanic crust adjacent to the Norwegian margin, *J. Geophys. Res.*, 89, 483-502, 1984.
- Mutter, J. C., K. Hinz, C. M. Zehnder, P. Buhl, and J. Alsop, Symmetric conjugation of continent-ocean boundary structures along the Norwegian and east Greenland margins, *Marine and Petrol. Geol.*, in press, 1986.
- Nábělek, J., Geometry and mechanism of faulting of the 1980 El Asnam, Algeria, earthquake from inversion of teleseismic body waves and comparison with field observations, *J. Geophys. Res.*, 90, 12713-12728, 1985.
- Nakanishi, I., and D. L. Anderson, World-wide distribution of group velocity of mantle Rayleigh waves as determined by spherical harmonic inversion, *Bull. Seismol. Soc. Am.*, 72, 1185-1194, 1982.
- Nakanishi, I., and D. L. Anderson, Measurements of mantle wave velocities and inversion for lateral heterogeneity and anisotropy, 1. Analysis of great circle phase velocities, *J. Geophys. Res.*, 88, 10267-10284, 1983.
- Nakanishi, I., and D. L. Anderson, Aspherical heterogeneity of the mantle from phase velocities of mantle waves, *Nature*, 307, 117-121, 1984.
- Nakanishi, I., and D. L. Anderson, Measurement of mantle wave velocities and inversion for lateral heterogeneity and anisotropy, 2. Analysis by the single-station method, *Geophys. J. R. Astron. Soc.*, 78, 573-618, 1984.
- Nakanishi, I., and H. Kanamori, Effects of lateral heterogeneity and source process time on the linear moment tensor inversion of long-period Rayleigh waves, *Bull. Seismol. Soc. Am.*, 72, 2063-2080, 1982.
- Nakanishi, K. K., and D. R. Breding, Proceedings of the 1986 RSTN/NORESS Research Symposium held in Las Vegas, NV, April 30-May 1, 1986, *Conference-8604196*, 525 pp., Lawrence Livermore Nat'l Lab., Livermore, CA, August 1986.
- Nakanishi, K. K., and N. W. Sherman, A time domain study of tectonic strain release effects on seismic waves from underground nuclear explosions, Lawrence Livermore Nat'l Lab., UCRL-53321, 28 pp., Livermore, CA, 1982.
- Nakanishi, K. K., S. R. Taylor, N. C. Burr, and P. W. Rodgers, Broadband seismograms for merged mid- and short-period RSTN data, Lawrence Livermore Nat'l Lab., UCID-19884, 19 pp., Livermore, CA, 1983.
- Nakata, J. K., C. M. Wentworth, and M. N. Machette, Quaternary fault map of the Basin and Range and Rio Grande rift provinces, western United States, *U.S. Geol. Surv. Open-File Rep.* 82-579, 2 pl., 1:2,500,000 scale maps, 1982.
- Nash, D. B., Morphologic dating of fluvial terrace scarps and fault scarps near West Yellowstone, Montana, *Geol. Soc. Am. Bull.*, 95, 1413-1424, 1984.
- Nash, D. B., Morphologic dating and modeling degradation of fault-scarps, in *Active Tectonics*, pp. 181-194, National Academy Press, Washington, DC, 1986.
- Nason, R., Food store disturbance as a seismic intensity indicator, *Bull. Seismol. Soc. Am.*, 74, 987-993, 1984.
- NAT Study Group, North Atlantic Transect: a wide-aperture, two-ship multichannel seismic investigation of the oceanic crust, *J. Geophys. Res.*, 90, 10321-10341, 1985.

- Nataf, H.-C., I. Nakanishi, and D. L. Anderson, Anisotropy and shear-velocity heterogeneities in the upper mantle, *Geophys. Res. Lett.*, 11, 109-112, 1984.
- Nataf, H.-C., I. Nakanishi, and D. L. Anderson, Measurements of mantle wave velocities and inversion for lateral heterogeneities and anisotropy, 3. Inversion, *J. Geophys. Res.*, 91, 7261-7307, 1986.
- Nau, J. M., and W. J. Hall, Scaling methods for earthquake response spectra, *J. Structural Div., Am. Soc. Civil Engin.*, 110, 1533-1548, 1984.
- Nava, F. A., and J. N. Brune, An earthquake-explosion reversed refraction line in the Peninsula ranges of southern California and the Baja California Norte, *Bull. Seismol. Soc. Am.*, 72, 1195-1206, 1982.
- Nava, F. A., and J. N. Brune, Source mechanisms and surface wave excitation for two earthquakes in northern Baja California, Mexico, *Geophys. J. R. Astron. Soc.*, 73, 739-763, 1983.
- Nelson, A. R., and R. B. Van Ardsdale, Recurrent late Quaternary movement on the Strawberry normal fault, Basin and Range—Colorado plateau transition zone, Utah, *Neotectonics*, 1, 7-37, 1986.
- Nelson, K. D., J. H. McBride, J. A. Arnow, J. E. Oliver, L. D. Brown, and S. Kaufman, New COCORP profiling in the southeastern United States, Part I: late Paleozoic suture and Mesozoic rift basin, *Geology*, 13, 714-718, 1985.
- Nelson, K. D., J. H. McBride, J. A. Arnow, J. E. Oliver, L. D. Brown, and S. Kaufman, New COCORP profiling in the southeastern United States, Part II: Brunswick and east coast magnetic anomalies, opening of the north-central Atlantic ocean, *Geology*, 13, 718-721, 1985.
- Nelson, K. D., T. F. Zhu, A. Gibbs, R. Harris, J. E. Oliver, S. Kaufman, L. Brown, and R. A. Schweickert, COCORP deep seismic reflection profiling in the northern Sierra Nevada, California, *Tectonics*, 5, 321-333, 1986.
- Ni, J., and M. Barazangi, High-frequency seismic wave propagation beneath the Indian shield, Himalayan arc, Tibetan plateau and surrounding regions: high uppermost mantle velocities and efficient S_n propagation beneath Tibet, *Geophys. J. R. Astron. Soc.*, 72, 665-689, 1983.
- Ni, J., and M. Barazangi, Seismotectonics of the Himalayan collision zone: geometry of the underthrusting Indian plate beneath the Himalaya, *J. Geophys. Res.*, 89, 1147-1163, 1984.
- Ni, J., and M. Barazangi, Active tectonics of the western Tethyan Himalaya above the underthrusting India plate: the upper Sutlej River basin as a pull-apart structure, *Tectonophysics*, 112, 277-295, 1985.
- Ni, J., and M. Barazangi, Seismotectonics of the Zagros continental collision zone and a comparison with the Himalayas, *J. Geophys. Res.*, 91, 8205-8218, 1986.
- Niazi, M., Estimation of rupture velocity and nearfield Q from the Tabas accelerograms of the September 16, 1978, Iran, earthquake, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 377-383, San Francisco, CA, 1984.
- Niazi, M., Radial asymmetry of the observed PGA and the question of focusing in the near-source region of April 24, 1984 Morgan Hill earthquake, in *The 1984 Morgan Hill, California Earthquake*, edited by J. H. Bennett and R. W. Sherburne, pp. 265-271, *Special Publ. 68*, Calif. Div. Mines and Geol., Sacramento, CA, 1984.
- Niazi, M., Regression analysis of reported earthquake precursors, I. Presentation of data, *Pagoph.*, 122, 966-981, 1984/85.
- Niazi, M., Spatial coherence of the ground motion produced by the 1979 Imperial Valley earthquake across El Centro differential array, *Phys. Earth Planet. Inter.*, 38, 162-173, 1985.
- Niazi, M., Accelerograms of the 1978 Tabas, Iran, earthquake, *Earthquake Spectra*, 2, 635-651, 1986.
- Niazi, M., and C. P. Mortgat, Application of logistic models to earthquake forecasting, *Earthq. Pred. Res.*, 2, 221-225, 1983.
- Nicholson, C., D. W. Simpson, S. Singh, and J. E. Zollweg, Crustal studies, velocity inversions, and fault tectonics: results from a microearthquake survey in the New Madrid seismic zone, *J. Geophys. Res.*, 89, 4545-4558, 1984.
- Nicholson, C., L. Seeber, P. Williams, and L. R. Sykes, Seismic evidence for conjugate slip and block rotation within the San Andreas fault system, southern California, *Tectonics*, 5, 629-684, 1986.
- Nicholson, C., L. Seeber, P. Williams, and L. R. Sykes, Seismicity and fault kinematics through the eastern Transverse ranges, California: block rotation, strike-slip faulting and low-angle thrusts, *J. Geophys. Res.*, 91, 4891-4908, 1986.
- Nishenko, S. P., Seismic potential for large and great interplate earthquakes along the

- Chilean and southern Peruvian margins of South America: a quantitative reappraisal, *J. Geophys. Res.*, **90**, 3589–3615, 1985.
- Nishenko, S. P., G. M. Purdy, and J. I. Ewing, Microaftershock survey of the 1978 Bermuda rise earthquake, *J. Geophys. Res.*, **87**, 10624–10636, 1982.
- Nishimura, C. E., and D. W. Forsyth, Anomalous Love-wave phase velocities in the Pacific: sequential pure-path and spherical harmonic inversion, *Geophys. J. R. Astron. Soc.*, **81**, 389–407, 1985.
- Nishimura, C., and D. W. Forsyth, Rayleigh wave phase velocities in the Pacific with implications for azimuthal anisotropy and lateral heterogeneities, *Geophys. J. R. Astron. Soc.*, in press, 1986.
- Nolet, G., B. Romanowicz, R. Kind, and E. Wielandt, ORFEUS science plan, report, observatories and research facilities for european seismology, Utrecht, 1986.
- Nordyke, M. D., and others, Special Issue, Treaty Verification, *Energy and Technology Review*, Lawrence Livermore Nat'l Lab., UCRL-52-000-83-5, 66 pp., Livermore, CA, 1983.
- Norris, R. S., T. B. Cochran, and W. M. Arkin, Known U.S. nuclear tests, July 1945 to 31 December 1985, Working Papers of Nuclear Weapons Databook, Natural Resources Defense Council, Washington, DC, 57 pp., 1986.
- Novelo-Casanova, D., and R. Butler, High-frequency seismic coda and scattering in the northwest Pacific, *Bull. Seismol. Soc. Am.*, **76**, 617–626, 1986.
- Novelo-Casanova, D. A., V. Hsu, E. Berg, and C. E. Helsley, Aftershock activity of the Petatlan earthquake: the first 54 hours, *Bull. Seismol. Soc. Am.*, **74**, 2451–2462, 1984.
- Novelo-Casanova, D. A., E. Berg, V. Hsu, and C. E. Helsley, Time-space variation of seismic S-wave coda attenuation (Q_c -1) and magnitude distribution (b -values) for the Petatlan earthquake, *Geophys. Res. Lett.*, **12**, 789–792, 1985.
- Nowack, R., and K. Aki, The two-dimensional Gaussian beam synthetic method: testing and application, *J. Geophys. Res.*, **89**, 7797–7819, 1984.
- Nowroozi, A., Empirical relations between magnitudes and fault parameters for earthquakes in Iran, *Bull. Seismol. Soc. Am.*, **75**, 1327–1338, 1985.
- Nowroozi, A. A., On the linear relation between m_b and M_s for discrimination between explosions and earthquakes, *Geophys. J. R. Astron. Soc.*, **86**, 687–699, 1986.
- Nowroozi, A. A., and A. Mohajer-Ashjai, Fault movements and tectonics of eastern Iran: boundaries of the Lut plate, *Geophys. J. R. Astron. Soc.*, **83**, 215–237, 1985.
- Nur, A., H. Ron, and O. Scotti, Fault mechanics and the kinematics of block rotations, *Geology*, **14**, 746–749, 1986.
- Nuttli, O. W., Average seismic source-parameter relations for mid-plate earthquakes, *Bull. Seismol. Soc. Am.*, **73**, 519–535, 1983.
- Nuttli, O. W., Empirical magnitude and spectral scaling relations for mid-plate and plate-margin earthquakes, *Tectonophysics*, **93**, 207–223, 1983.
- Nuttli, O. W., Average source-parameter relations for plate margin earthquakes, *Tectonophysics*, **118**, 161–174, 1985.
- Nuttli, O. W., Lg magnitudes of selected east Kazakhstan underground explosions, *Bull. Seismol. Soc. Am.*, **76**, 1241–1251, 1986.
- Nuttli, O. W., Yield estimates of Nevada test site explosions obtained from seismic Lg waves, *J. Geophys. Res.*, **91**, 2137–2151, 1986.
- Obermeier, S. F., G. S. Gohn, R. E. Weems, R. L. Gelinas, and R. Meyer, Geologic evidence for recurrent moderate to large earthquakes near Charleston, South Carolina, *Science*, **277**, 408–411, 1985.
- Obermeier, S. R., G. S. Gohn, R. E. Weems, R. L. Gelinas, and M. Rubin, Geologic evidence for moderate to large earthquakes near Charleston, South Carolina, *Science*, **227**, 408–412, 1985.
- O'Connell, D. R., and P. E. Murtha, Source parameters of Coalinga aftershocks from the UC Berkeley portable digital array, in *The 1983 Coalinga, California Earthquakes*, edited by J. H. Bennett and R. W. Sherburne, pp. 293–306, *Special Publ. 66*, Calif. Div. Mines and Geol., Sacramento, CA, 1983.
- Oste, D., Statement before the Special Panel on Arms Control and Disarmament of the Armed Services Committee, House of Representatives, *Congressional Record*, May 8, 1986.
- Okal, E. A., Oceanic intraplate seismicity, *Ann. Rev. Earth Planet. Sci.*, **11**, 195–214, 1983.
- Okal, E., Intraplate seismicity of the southern part of the Pacific basin, *J. Geophys. Res.*, **89**, 10053–10071, 1984.
- Okal, E. A., Attenuation measurements for mantle Rayleigh spheroidal overtones (3R, 4R, 5R), *Eos (Trans. Amer. Geophys. Un.)*, **67**, 307, 1986.
- Okal, E. A., and J.-M. Bergeal, Mapping the Miocene Farallon ridge jump on the Pacific

- plate: a seismic line of weakness, *Earth Planet. Sci. Lett.*, **63**, 113–122, 1983.
- Okal, E. A., and B.-G. Jo, Regional dispersion of first-order overtone Rayleigh waves, *Geophys. J. R. Astron. Soc.*, **72**, 461–481, 1983.
- Okal, E. A., and B.-G. Jo, Stacking investigations of higher-order mantle Rayleigh waves, *Geophys. Res. Lett.*, **12**, 421–424, 1985.
- Okal, E. A., and L. M. Stewart, Slow earthquakes along oceanic fracture zones: evidence for asthenospheric flow away from hotspots, *Earth Planet. Sci. Lett.*, **57**, 75–87, 1982.
- Okaya, D. A., Geometry of Cenozoic extensional faulting: Dixie Valley, Nevada, *Tectonics*, **4**, 107–126, 1985.
- Okaya, D. A., Seismic profiling of the lower crust: Dixie Valley, Nevada, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 269–279, AGU Geodynamics Series, Washington, DC, 1986.
- Okaya, D. A., and G. A. Thompson, Geometry of Cenozoic extensional faulting: Dixie Valley, Nevada, *Tectonics*, **4**, 107–125, 1985.
- Okaya, D. A., T. V. McEvilly, and E. G. Frost, CALCRUST reflection profiling in the Mojave–Sonoran desert (abs.), *Eos (Trans. Amer. Geophys. Un.)*, **66**, 978, 1985.
- Okubo, P. G., and J. H. Dieterich, Effects of physical fault properties on frictional instabilities produced on simulated faults, *J. Geophys. Res.*, **89**, 5817–5827, 1984.
- Okubo, P. G., and J. H. Dieterich, State variable fault constitutive relations for dynamic slip, in *Earthquake Source Mechanics*, Maurice Ewing Ser., vol. 6, edited by S. Das et al., pp. 25–35, AGU, Washington, DC, 1986.
- Oliver, J., A global perspective on seismic reflection profiling of the continental crust, in *Reflection Seismology: A Global Perspective*, vol. 13, edited by M. Barazangi and L. Brown, pp. 1–3, AGU Geodynamics Series, Washington, DC, 1986.
- Oliver, J., F. Cook, and L. Brown, COCORP and the continental crust, *J. Geophys. Res.*, **88**, 3329–3347, 1983.
- Olsen, K. H., The role of seismic refraction data for studies of the origin and evolution of continental rifts, *Tectonophysics*, **94**, 349–370, 1983.
- Olsen, K. H., and C. E. Lund, Precambrian crustal structure of the northern Baltic shield from the FENNOLORA profile: evidence for upper crustal anisotropic laminations, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 121–126, AGU Geodynamics Series, Washington, DC, 1986.
- Olsen, K. H., L. W. Braile, J. N. Stewart, C. R. Daudt, G. R. Keller, L. A. Ankeny, and J. J. Wolff, Jemez Mountains volcanic field, New Mexico: time term interpretation of the CARDEX seismic experiment and comparison with Bouguer gravity, *J. Geophys. Res.*, **91**, 6175–6187, 1986.
- Olson, A. H., and R. J. Apsel, Finite faults and inverse theory with applications to the 1979 Imperial Valley earthquake, *Bull. Seismol. Soc. Am.*, **72**, 1969–2001, 1982.
- Olson, A. H., J. A. Orcutt, and G. A. Frazier, The discrete wavenumber/finite element method for synthetic seismograms, *Geophys. J. R. Astron. Soc.*, **77**, 421–460, 1984.
- O'Neill, M. E., Source dimensions and stress drops of small earthquakes near Parkfield, California, *Bull. Seismol. Soc. Am.*, **74**, 27–40, 1984.
- Oppenheimer, D. H., Extensional tectonics at the Geysers geothermal area, California, *J. Geophys. Res.*, **91**, 11463–11476, 1986.
- Oppenheimer, D. H., and J. P. Eaton, Moho orientation beneath central California from regional earthquake travel-times, *J. Geophys. Res.*, **89**, 10267–10282, 1984.
- Orcutt, J., and T. H. Jordan, MSS and OBS data from the Ngendei experiment in the southwest Pacific, in *The VELA Program*, edited by A. Kerr, pp. 758–770, Defense Advanced Research Projects Agency, Washington, DC, 1986.
- Orcutt, J. A., B. Kennett, L. Dorman, and W. Prothero, A low velocity zone underlying a fast spreading rise crest, *Nature*, **259**, 475–476, 1976.
- Orcutt, J. A., J. S. McClain, and M. Burnett, Seismic constraints on the generation, evolution, and structure of the ocean crust, in *Spec. Publ. Geol. Soc. London 13: Ophiolites and Oceanic Lithosphere*, edited by I. G. Gass et al., pp. 7–16, Blackwell Scientific Publications, Oxford, 1984.
- Orcutt, J. A., R. D. Moore, and T. H. Jordan, Description and performance of the Scripps ocean bottom seismographs during the Ngendei experiment, *Initial Reports of the Deep Sea Drilling Project*, **88/91**, in press, 1986.
- O'Rourke, M. J., G. Castro, and I. Hossain, Horizontal soil strain due to seismic waves, *J. Geotech. Engin. Div., Am. Soc. Civil Engin.*, **110**, 1173–1187, 1984.
- Ota, Y., Marine terraces and active faults in Japan with special reference to coseismic events, in *Tectonic Geomorphology*,

- Proc. of the 15th Annual Binghamton Geomorphology Symposium*, edited by M. Morisawa and J. T. Hack, pp. 345-366, Allen and Unwin, Boston, MA, 1985.
- Ouchi, S., Response of alluvial rivers to slow active tectonic movement, *Geol. Soc. Am. Bull.*, **95**, 504-515, 1985.
- Ouyed, M., G. Yielding, D. Hatzfeld, and G. C. P. King, An aftershock study of the El Asnam (Algeria) earthquake of 1980 October 10, *Geophys. J. R. Astron. Soc.*, **10**, 605, 1983.
- Owens, T. J., Normal faulting and flexure in an elastic-perfectly plastic plate, *Tectonophysics*, **93**, 129-150, 1983.
- Owens, T. J., and G. Zandt, The response of the continental crust-mantle boundary observed on broadband teleseismic receiver functions, *Geophys. Res. Lett.*, **12**, 705-708, 1985.
- Owens, T. J., S. R. Taylor, and G. Zandt, Crustal structure beneath RSTN stations inferred from teleseismic *P*-wave forms: preliminary results at RSCP, RSSD, and RSNY, Lawrence Livermore Nat'l Lab., UCID-19859, 28 pp., Livermore, CA, 1983.
- Owens, T. J., G. Zandt, and S. R. Taylor, Seismic evidence for an ancient rift beneath the Cumberland plateau, Tennessee: a detailed analysis of broadband teleseismic *P* waveforms, *J. Geophys. Res.*, **89**, 7783-7795, 1984.
- Page, B. M., The Calaveras fault zone of California, an active plate boundary element, in *The 1984 Morgan Hill, California Earthquake, Special Publication 68*, pp. 109-122, Calif. Dept. Conservation, Div. Mines and Geology, 1984.
- Page, B. M., Geologic background of the Coalinga earthquake of May 2, 1983, in *Proc. of Workshop XXVII, Mechanics of the May 2, 1983, Coalinga Earthquake*, edited by M. J. Rymer and W. L. Ellsworth, pp. 4-9, U.S. Geol. Surv. Open-File Rep. 85-44, 1985.
- Page, R. A., Comments on "Earthquake frequency and prediction" by Z.-R. Liu, *Bull. Seismol. Soc. Am.*, **76**, 1491-1496, 1986.
- Page, R. A., G. Plafker, G. S. Fuis, W. J. Nokleberg, E. L. Ambos, W. D. Mooney, and D. L. Campbell, Accretion and subduction tectonics in the Chugach Mountains and Copper River basin, Alaska: initial results of the Trans-Alaska crustal transect, *Geology*, **14**, 501-505, 1986.
- Pallister, J. S., and C. A. Hopson, Samail ophiolite plutonic suite: field relations, phase variations, cryptic variation and layering, and a model of a spreading ridge magma chamber, *J. Geophys. Res.*, **86**, 2593-2644, 1981.
- Panel on Data Problems in Seismology, Effective use of earthquake data, *Board on Earth Sciences Report*, National Academy Press, Washington, DC, 1983.
- Pao, Y. H., F. Ziegler, and P. L. Chen, Analysis of transient waves in layered media with dipping structure, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 703-710, San Francisco, CA, 1984.
- Papageorgiou, A. S., Barrier and asperity models of strong ground motion, in *Strong Ground Motion Simulation and Earthquake Engineering Applications*, Publ. 85-02, edited by R. E. Scholl and J. L. King, pp. 15-1-15-9, Earthquake Engin. Res. Inst., El Cerrito, CA, 1985.
- Papageorgiou, A. S., and K. Aki, A specific barrier model for the quantitative description of inhomogeneous faulting and the prediction of strong ground motion, I. Description of the model, *Bull. Seismol. Soc. Am.*, **73**, 693-722, 1983.
- Papageorgiou, A. S., and K. Aki, A specific barrier model for the quantitative description of inhomogeneous faulting and prediction of strong ground motion, Part II. Applications of the model, *Bull. Seismol. Soc. Am.*, **73**, 953-978, 1983.
- Park, J., Synthetic seismograms from coupled free oscillations: effects of lateral structure and rotation, *J. Geophys. Res.*, **91**, 6441-6464, 1986.
- Park, J., and F. Gilbert, Coupled free oscillations of an aspherical, dissipative, rotating earth: Galerkin theory, *J. Geophys. Res.*, **91**, 7241-7260, 1986.
- Parker, E. C., P. M. Davis, J. R. Evans, H. M. Iyer, and K. H. Olsen, Upwarps of anomalous asthenosphere beneath the Rio Grand rift, *Nature*, **312**, 354-356, 1984.
- Patton, H. J., *P*-wave fault-plane solutions and the generation of surface waves by earthquakes in the western United States, *Geophys. Res. Lett.*, **12**, 518-521, 1985.
- Patton, H. J., and S. R. Taylor, *Q* structure of the Basin and Range from surface waves, *J. Geophys. Res.*, **89**, 6929-6940, 1984.
- Patton, H. J., S. R. Taylor, D. B. Harris, and J. M. Mills, The utility of regional Chinese seismograms for source and path studies in Central Asia, *Geophys. J. R. Astron. Soc.*, **81**, 469-478, 1985.
- Pauly, S. E., Strong motion accelerograph selection, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 47-54, San Francisco, CA, 1984.

- Pavlin, G. B., and C. A. Langston, Source parameters of a reservoir-induced seismic sequence: Lake Kariba, Africa, 1963 September, *Geophys. J. R. Astron. Soc.*, **74**, 819-841, 1983.
- Pavlis, G. L., and N. B. Hokanson, Separated earthquake locations, *J. Geophys. Res.*, **90**, 12777-12789, 1985.
- Pearson, G. W., and M. Stuiver, High-precision calibration of the radiocarbon time scale, AD1950-2500BC, *Radiocarbon*, **28**, 839-862, 1986.
- Peddy, C. P., Displacement of the Moho by the Outer Isles thrust shown by seismic modeling, *Nature*, **312**, 628-630, 1984.
- Peddy, C., L. D. Brown, and S. L. Klempner, Interpreting the deep structure of rifts with synthetic seismic sections, in *Reflection Seismology: A Global Perspective*, vol. 13, edited by M. Barazangi and L. Brown, pp. 301-311, AGU Geodynamics Series, Washington, DC, 1986.
- Pennington, W. D., S. D. Davis, S. M. Carlson, J. DuPree, and T. E. Ewing, The evolution of seismic barriers and asperities caused by the depressuring of fault planes in oil and gas fields of south Texas, *Bull. Seismol. Soc. Am.*, **76**, 939-948, 1986.
- Percival, J. A., A possible exposed Conrad discontinuity in the Kapuskasing uplift, Ontario, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 135-141, AGU Geodynamics Series, Washington, DC, 1986.
- Perez, V., and A. G. Brady, Reversing cyclic elastic demands on structures during earthquakes and applications to ductility requirements, *Earthquake Spectra*, **1**, 7-32, 1984.
- Perkins, D. M., Perspectives on properties of attenuation function variabilities using a naive rupture model, in *Proc of Conf. XXII, A Workshop on "Site-Specific Effects of Soil and Rock on Ground Motion and the Implications for Earthquake-Resistant Design,"* edited by W. W. Hays, pp. 319-330, U.S. Geol. Surv. Open-File Rep. 83-845, 1983.
- Petersen, J. F., Equilibrium tendency in piedmont scarp denudation, Wasatch Front, Utah, in *Tectonic Geomorphology, Proc. of the 15th Annual Binghamton Geomorphology Symposium*, edited by M. Morisawa and J. T. Hack, pp. 209-233, Allen and Unwin, Boston, MA, 1985.
- Peterson, E. T., and T. Seno, Factors affecting seismic moment release rates in subduction zones, *J. Geophys. Res.*, **89**, 10233-10248, 1984.
- Peterson, T. A., L. D. Brown, F. A. Cook, S. Kaufman, and J. E. Oliver, Structure of the Riddleville basin from COCORP seismic data and implications for reactivation tectonics, *J. Geology*, **92**, 261-271, 1984.
- Philip, H., Structural analysis and interpretation of the surface deformations of the El Asnam earthquake of October 10, 1980, *Tectonics*, **2**, 17-50, 1983.
- Philip, H., and M. Meghraoui, Structural analysis and interpretation of the surface deformations of the El Asnam earthquake of October 10, 1980, *Tectonics*, **2**, 17-49, 1983.
- Phillips, W. S., and K. Aki, Site amplification of coda waves from local earthquakes in central California, *Bull. Seismol. Soc. Am.*, **76**, 627-648, 1986.
- Phinney, R. A., A seismic cross section of the New England Appalachians: the orogen exposed, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 157-172, AGU Geodynamics Series, Washington, DC, 1986.
- Phinney, R. A., and R. I. Odom, Seismic studies of crustal structure, *Rev. Geophys.*, **21**, 1318-1332, 1983.
- Pierce, K. L., Quaternary history, history of faulting on the Arco segment of the Lost River fault, central Idaho, in *Proc. of Workshop XXVIII, On the Borah Peak, Idaho, Earthquake*, vol. A, edited by R. S. Stein and R. C. Bucknam, pp. 195-206, U.S. Geol. Surv. Open-File Rep. 85-290, 1985.
- Pierce, K. L., Dating methods, in *Active Tectonics*, pp. 195-214, National Academy Press, Washington, DC, 1986.
- Pierce, K. L., and S. M. Colman, Effect of height and orientation (microclimate) on geomorphic degradation rates and processes, late glacial terrace scarps in central Idaho, *Geol. Soc. Am. Bull.*, **97**, 869-885, 1986.
- Pillans, B., Upper Quaternary marine terrace chronology and deformation, South Taranaki, New Zealand, *Geology*, **11**, 292-297, 1983.
- Piper, D. J. W., A. N. Shor, J. A. Farre, S. O'Connell, and R. Jacobi, Sidescan sonar investigations near the epicenter of the 1929 Grand Banks earthquake, *Geology*, **13**, 538-541, 1985.
- Pirazzoli, P. A., J. Thommeret, Y. Thommeret, J. Laborel, and L. F. Montaggioni, Crustal block movements from Holocene shorelines: Crete and Antikythira (Greece), *Tectono-physics*, **86**, 27-44, 1983.

- Pittman, W. C., III, Passive continental margins: a review, *Rev. Geophys.*, 21, 1545-1565, 1983.
- Place, D. J., and J. E. Ebel, Array measurements for the lower mantle from the New England seismic network, *Eos (Trans. Amer. Geophys. Un.)*, 63, 1035, 1982.
- Poehls, K., Seismic refraction of the Mid-Atlantic ridge at 37°N, *J. Geophys. Res.*, 79, 3370-3373, 1974.
- Polhemus, N. W., and E. Jones, Interactive database for graphical retrieval of strong motion accelerograms, in *Proc. 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 87-91, San Francisco, CA, 1984.
- Pomeroy, P. W., W. J. Best, and T. V. McEvilly, Test ban treaty verification with regional data—a review, *Bull. Seismol. Soc. Am.*, 72, S89-S129, 1982.
- Porcella, R. L., (ed.) Seismic engineering program report January-April 1980, *U.S. Geol. Surv. Circular 854-A*, 21 pp., 1982.
- Porcella, R. L., (ed.) Seismic engineering program report May-August 1980, *U.S. Geol. Surv. Circular 854-B*, 25 pp., 1983.
- Porcella, R. L., (ed.) Seismic engineering program report, September-December, 1980, *U.S. Geol. Surv. Circular 854-C*, 19 pp., 1983.
- Porcella, R. L., (ed.) Strong-motion program report, January-December 1981, *U.S. Geol. Surv. Circular 914*, 19 pp., 1983.
- Porcella, R. L., Geotechnical investigations at strong-motion stations in the Imperial Valley, California, *U.S. Geol. Surv. Open-File Rep. 84-562*, 174 pp., 1984.
- Porcella, R. L., (ed.) Strong-motion program report, January-December 1982, *U.S. Geol. Surv. Circular 965*, 22 pp., 1985.
- Porcella, R. L., Strong motion report, Oct. 1984-March 1985, *Earthquake Spectra*, 1, 849-854, 1985.
- Porcella, R. L., (ed.) Strong-motion program report, January-December 1983, *U.S. Geol. Surv. Circular 971*, 57 pp., 1986.
- Porcella, R. L., (ed.) Strong-motion program report, January-December 1984, *U.S. Geol. Surv. Circular 992*, 25 pp., 1986.
- Porcella, R. L., Strong motion report, April 1985-Sept. 1985, *Earthquake Spectra*, 2, 685-690, 1986.
- Porcella, R., E. Etheredge, and R. Maley, Some strong-motion recordings of the 1986 North Palm Springs earthquake, *Bull. Seismol. Soc. Am.*, 76, 1844-1846, 1986.
- Porter, L. D., A. G. Brady, P. N. Mork, and V. Perez, Processed data from the San Juan Bautista 101/156 separation bridge and the San Juan Bautista freefield records from the Coyote Lake earthquake 6 August 1979, *Special Publ. 64*, 151 pp., Office of Strong Motion Studies, Calif. Div. Mines and Geol., Sacramento, CA, 1983.
- Post, R., and B. McTigue (transcript), Perle and the Scientists, A KRON-TV Target 4 Unit Series, San Francisco, CA, May 9, 1986.
- Potter, C. J., Origin, accretion, and postaccretionary evolution of the Bridge River terrane, southwest British Columbia, *Tectonics*, 5(7), 1027-1041, 1986.
- Potter, C. J., E. C. Hauser, and J. E. Oliver, Evolution of the North American cordillera from COCORP data (abs.), *Eos (Trans. Amer. Geophys. Un.)*, 66, 974, 1985.
- Potter, C. J., Sanford, W. E., Yoos, T. R., Prussen, E. I., Keach, W., Oliver, J. E., Kaufman, S., and Brown, L. D., COCORP deep seismic reflection traverse of the interior of the North American cordillera, Washington and Idaho: implications for orogenic evolution, *Tectonics*, 5(7), 1007-1025, 1986.
- Potter, C. J., C.-S. Liu, J. Huang, L. Zheng, T. A. Hauge, E. C. Hauser, R. W. Allmendinger, J. E. Oliver, S. Kaufman, and L. Brown, Crustal structure of north-central Nevada: results from COCORP deep seismic profiling, *Geol. Soc. Am. Bull.*, in press, 1987.
- Poupinet, G., W. L. Ellsworth, and J. Frechet, Monitoring velocity variations in the crust using earthquake doublets: an application to the Calaveras fault, California, *J. Geophys. Res.*, 89, 5719-5731, 1984.
- Poupinet, G., J. Frechet, W. L. Ellsworth, M. J. Fremont, and F. Glangeaud, Doublet analysis: improved accuracy for earthquake prediction studies, *Earthq. Pred. Res.*, 3, 147-159, 1985.
- Powell, C. A., and A. S. Meltzer, Scattering of P-waves beneath SCARLET in southern California, *Geophys. Res. Lett.*, 11, 481-484, 1984.
- Power, M. S., C.-Y. Chang, and I. M. Idriss, Variation of earthquake ground motion with depth, in *Proc. of 3rd U.S. Nat. Conf. on Earthquake Engin.*, vol. 1, pp. 369-380, Charleston, SC, 1986.
- Pratt, T. L., J. K. Costain, C. Coruh, L. Glover III, and E. S. Robinson, Geophysical evidence for an allochthonous Alleghanian granitoid beneath the basement surface of the coastal plain near Lumberton, North Carolina, *Geol. Soc. Am. Bull.*, 96, 1070-1076, 1985.

- Prescott, W. H., and S. B. Yu, Geodetic measurement of horizontal deformation in the northern San Francisco bay region, California, *J. Geophys. Res.*, 91, 7475-7484, 1986.
- Prescott, W. H., N. E. King, and G. Guohua, Preseismic, coseismic and postseismic deformation associated with the 1984 Morgan Hill, California, earthquake, in *The 1984 Morgan Hill, California Earthquake, Special Publication 68*, pp. 137-148, Calif. Dept. Conservation, Div. Mines and Geology, 1984.
- Prescott, W. H., N. E. King, and G. Gu, Preseismic and coseismic deformation associated with the 1984 Morgan Hill, California, earthquake, in *The Morgan Hill, California Earthquake of April 24, 1984 (A Preliminary Report)*, vol. 1, pp. 50-59, U.S. Geol. Surv. Open-File Rep. 84-498A, 1984.
- President of the United States, Possible avenues for cooperation with the Soviet Union in the development of capabilities for verifying compliance with nuclear testing limitations, *U.S. House of Representatives, Document 99-258*, 19 pp., U.S. Govt. Printing Office, 71-011-0, Washington, DC, August 14, 1986.
- Prevost, J. H., Wave propagation in fluid-saturated porous media: an efficient finite element procedure, *Soil Dynamics and Earthquake Engin.*, 4, 183-202, 1985.
- Priestly, K., and D. E. Chavez, Magnitude bias in the Great basin and its implications for explosion magnitude versus yield estimates, *Geophys. Res. Lett.*, 12, 573-576, 1985.
- Priestly, K., and F. J. Davey, Crustal structure of Fiordland, southwestern New Zealand, from seismic-refraction measurements, *Geology*, 11, 660-663, 1983.
- Priestley, K. F., and T. G. Masters, Source mechanism of the September 19, 1985 Michoacan earthquake and its implications, *Geophys. Res. Lett.*, 13, 601-604, 1986.
- Priestley, K. F., J. N. Brune, and J. G. Anderson, Surface wave excitation and source mechanisms of the Mammoth Lakes earthquake sequence, *J. Geophys. Res.*, 90, 11177-11185, 1985.
- Prodehl, C., Structure of the earth's crust and upper mantle, in *Geophysics of the Solid Earth, the Moon and the Planets*, V-IIA, edited by K. Fuchs and H. Soffel, pp. 97-206, Landoldt-Bornstein, Springer Verlag, Heidelberg, 1984.
- Prodehl, C., J. Schlittenhardt, and S. W. Stewart, Crustal structure of the Appalachian highlands in Tennessee, *Tectonophysics*, 109, 61-76, 1984.
- Prothero, W. A., and W. Schaecher, First noise and teleseismic recordings on a new ocean bottom seismometer capsule, *Bull. Seismol. Soc. Am.*, 74, 1043-1058, 1984.
- Prowell, D. C., Index of faults of Cretaceous and Cenozoic age in the eastern United States, *U.S. Geol. Surv. Misc. Field Studies Map MF-1260*, 2 sheets, 1983.
- Psycharis, I. N., and P. C. Jennings, Upthrow of objects due to horizontal impulse excitation, *Bull. Seismol. Soc. Am.*, 75, 543-561, 1985.
- Pulli, J. J., Attenuation of coda waves in New England, *Bull. Seismol. Soc. Am.*, 74, 1149-1166, 1984.
- Pulpan, H., and C. Frohlich, Geometry of the subducted plate near Kodiak Island and Lower Cook Inlet, Alaska, determined from relocated earthquake hypocenters, *Bull. Seismol. Soc. Am.*, 75, 791-810, 1985.
- Purdy, G. M., The correction for the travel time effects of seafloor topography in the interpretation of marine seismic data, *J. Geophys. Res.*, 87, 8389-8396, 1982.
- Purdy, G. M., The seismic structure of 140 Myr old crust in the western central Atlantic ocean, *Geophys. J. R. Astron. Soc.*, 72, 115-137, 1983.
- Purdy, G. M., A determination of the seismic velocity structure of sediments using both sources and receivers near the ocean floor, *Mar. Geophys. Res.*, 8, 75-91, 1986.
- Purdy, G. M., and R. S. Detrick, Crustal structure of the Mid Atlantic ridge at 23°N from seismic refraction studies, *J. Geophys. Res.*, 91, 3739-3762, 1986.
- Purdy, G. M., and J. I. Ewing, Seismic structure of the ocean crust, in *Decade of North American Geology Series: The Western Atlantic Region*, Spec. Pap. Geol. Soc. Am., in press, 1986.
- Purdy, G. M., and L. A. Gove, Reflection profiling in the deep ocean using a near bottom hydrophone, *Mar. Geophys. Res.*, 5, 302-314, 1982.
- Qamar, A., W. St. Lawrence, J. N. Moore, and G. Kendrick, Seismic signals preceding the explosive eruption of Mount St. Helens, Washington, on 18 May 1980, *Bull. Seismol. Soc. Am.*, 73, 1797-1813, 1983.
- Qidong, D., and A. Peizhen, Research on the geometry of shear fracture zones, *J. Geophys. Res.*, 89, 5699-5710, 1984.
- Qidong, D., S. Fengmin, Z. Shilong, L. Mengluan, W. Tielin, Z. Weiqi, B. C. Burchfiel, P. Molnar, and Z. Peizhen, Active faulting and tectonics of the Ningxia-Hui autonomous region, China, *J. Geophys. Res.*, 89, 4427-4446, 1984.

- Qidong, D., and 10 others, Variations in the geometry and amount of slip on the Haiyuan (Nanxiushan) fault zone, China and the surface rupture of the 1920 Haiyuan earthquake, in *Earthquake Source Mechanics, Maurice Ewing Ser.*, vol. 6, pp. 168-182, AGU, Washington, DC, 1986.
- Quittmeyer, R. C., and A. L. Kafka, Constraints on plate motions in southern Pakistan and the northern Arabian Sea from the focal mechanisms of small earthquakes, *J. Geophys. Res.*, 89, 2444-2458, 1984.
- Quittmeyer, R. C., A. L. Kafka, and J. G. Armbruster, Focal mechanisms and depths of earthquakes in central Pakistan: a tectonic interpretation, *J. Geophys. Res.*, 89, 2459-2470, 1984.
- Quittmeyer, R. C., C. T. Statton, K. A. Mrotek, and M. Houlday, Possible implications of recent microearthquakes in southern New York State, *Earthquake Notes*, 56, 35-42, 1985.
- Raugh, M. R., Procedures for analysis of strong-motion records (abs.), *Earthquake Notes*, 52, 17, 1981.
- Raleigh, C. B., A strategy for short-term prediction of earthquakes, *Bull. Seismol. Soc. Am.*, 72, S337-S342, 1982.
- Raleigh, C. B., K. Sieh, L. R. Sykes, and D. L. Anderson, Forecasting southern California earthquakes, *Science*, 217, 1097-1104, 1982.
- Reasenberg, P., Second-order moment of central California seismicity, 1969-1982, *J. Geophys. Res.*, 90, 5479-5495, 1985.
- Reasenberg, P., D. Eberhart-Phillips, and P. Segall, Preliminary views of the aftershock distribution of the May 2, 1983, Coalinga, earthquake, in *The Coalinga Earthquake Sequence Commencing May 2, 1983*, pp. 27-37, U.S. Geol. Surv. Open-File Rep. 83-511, 1983.
- Regan, J., and D. L. Anderson, Anisotropic models of the upper mantle, *Phys. Earth Planet. Inter.*, 35, 227-263, 1984.
- Reheis, M. C., Evidence for Quaternary tectonism in the northern Bighorn basin, Wyoming and Montana, *Geology*, 12, 364-367, 1985.
- Reilinger, R., Coseismic and postseismic vertical movements associated with the 1940 M 7.1 Imperial Valley, California, earthquake, *J. Geophys. Res.*, 89, 4531-4537, 1984.
- Reilinger, R., A strain anomaly near the southern end of the San Andreas fault, Imperial Valley, California, *Geophys. Res. Lett.*, 12, 561-564, 1985.
- Reilinger, R., and K. Kadinsky-Cade, Earthquake deformation cycle in the Andean back arc, western Argentina, *J. Geophys. Res.*, 90, 12701-12712, 1985.
- Reimer, G. M., Prediction of central California earthquakes from soil-gas helium fluctuations, *Pageoph.*, 122, 369-375, 1984/85.
- Revenaugh, J. S., and T. H. Jordan, Observation of first-order mantle reverberations, *Eos (Trans. Amer. Geophys. Un.)*, 66, 967, 1985.
- Rial, J. A., Caustics and focusing produced by sedimentary basins: applications of catastrophe theory to earthquake seismology, *Geophys. J. R. Astron. Soc.*, 79, 923-938, 1984.
- Rial, J. A., and E. Brown, Waveform modeling of long period P -waves from the Coalinga earthquake of May 2, 1983, in *The 1983 Coalinga, California Earthquakes*, edited by J. H. Bennett and R. W. Sherburne, pp. 247-259, Special Publ. 66, Calif. Div. Mines and Geol., Sacramento, CA, 1983.
- Rial, J. A., and B. Moran, Radiation patterns for explosively-loaded axisymmetric cavities in an elastic medium: analytic approximations and numerical results, *Geophys. J. R. Astron. Soc.*, 86, 855-862, 1986.
- Rial, J. A., S. Grand, and D. V. Helmberger, A note on lateral variation in upper mantle shear-wave velocity across the Alpine front, *Geophys. J. R. Astron. Soc.*, 77, 639-654, 1984.
- Rial, J. A., V. Pereyra, and G. L. Wojcik, An explanation for the USGS Station 6 record, 1979 Imperial Valley earthquake: a caustic induced by a sedimentary wedge, *Geophys. J. R. Astron. Soc.*, 84, 257-278, 1986.
- Rice, J. R., Constitutive relations for fault slip and earthquake instabilities, *Pageoph.*, 121, 443-475, 1983.
- Richards, M. A., and B. H. Hager, Geoid anomalies in a dynamic earth, *J. Geophys. Res.*, 89, 5987-6002, 1984.
- Richards, P. G., Seismic wave propagation effects—development of theory and numerical modeling, in *The VELA Program*, edited by A. Kerr, pp. 183-226, 1985.
- Richards, P. G., Station magnitude bias—its existence and estimation (28 pages, for U.S. Arms Control and Disarmament Agency), August 1985.
- Richards, P. G., Earth noise in the band 1-100 Hz: comparison of studies from the 1960's and 1980's: *Eos (Trans. Amer. Geophys. Un.)*, 67, 315, 1986.
- Richards, P. G., Underground nuclear testing (19 Sept. 1957), in *Book of Days 1987*:

- A Guide to Anniversaries of People and Events*, edited by C. S. Johnson, Pierian Press, pp. 462-463, 1987.
- Richards, P. G., Written testimony for the House Permanent Committee on Intelligence, May 6, 1986, for the Technology Assessment Board (a Joint Committee of the U.S. Congress), August 1986; and for the Senate Foreign Relations Committee, January 15, 1987.
- Richards, P. G., Seismic detection of nuclear explosions, in *Encyclopedia of Geophysics*, edited by D. E. James, Van Nostrand Reinhold, accepted for publication in 1988.
- Richards, P. G., and A. Lindh, Toward a new test ban regime, *Issues Sci. and Technol.*, in press, 1987.
- Richards, P. G., and W. Menke, The apparent attenuation of a scattering medium, *Bull. Seismol. Soc. Am.*, 73, 1005-1021, 1983.
- Richins, W. D., R. B. Smith, C. J. Langer, J. E. Zollweg, J. J. King, and J. C. Pechmann, The 1983 Borah Peak, Idaho earthquake: relationship of aftershocks to the main shock, surface faulting, and regional tectonics, in *Proc. of Workshop XXVIII. On the Borah Peak, Idaho, Earthquake*, vol. A, edited by R. S. Stein and R. C. Bucknam, pp. 285-310, U.S. Geol. Surv. Open-File Rep. 85-290, 1985.
- Riedesel, M., J. A. Orcutt, K. C. Macdonald, and J. S. McClain, Microearthquakes in the black smoker hydrothermal field, east Pacific rise at 21°N, *J. Geophys. Res.*, 87, 613-623, 1982.
- Riedesel, M. A., T. H. Jordan, A. F. Sheehan, and P. G. Silver, Moment-tensor spectra of the 19 Sept 85 and 21 Sept 85 Michoacan, Mexico, earthquakes, *Geophys. Res. Lett.*, 13, 609-612, 1986.
- Rikitake, T., Strain rate of active fault and earthquake risk, *Earthquake Prediction Research*, 2, 277, 1984.
- Risso, P. C., P. F. O'Hara, and E. G. Zullo, Ground motion amplification studies for sites in the Charleston area, in *Proc. of 3rd U.S. Nat. Conf. on Earthquake Engin.*, vol. 1, pp. 333-344, Charleston, SC, 1986.
- Ritzwoller, M., G. Masters, and F. Gilbert, Observations of anomalous splitting and their interpretation in terms of aspherical structure, *J. Geophys. Res.*, 91, 10203-10228, 1986.
- Robinson, A., and P. Talwani, Building damage at Charleston, South Carolina, associated with the 1886 earthquake, *Bull. Seismol. Soc. Am.*, 73, 633-652, 1983.
- Rockwell, T. K., and C. T. Pinault, Holocene slip events on the southern Elsinore fault Coyote Mountains, southern California, in *Neotectonics and Faulting in Southern California*, compiled by P. L. Ehlig, pp. 143-196, *Cordilleran Section, Geol. Soc. Am. Guidebook and Volume*, 1986.
- Rockwell, T. K., E. A. Keller, M. N. Clark, and D. L. Johnson, Chronology and rates of faulting of Ventura River terraces, California, *Geol. Soc. Am. Bull.*, 95, 1466-1474, 1984.
- Rockwell, T. K., R. S. McElwain, D. E. Millman, and D. L. Lamar, Recurrent late Holocene faulting on the Glen Ivy north strand of the Elsinore fault at Glen Ivy marsh, in *Neotectonics and Faulting in Southern California*, compiled by P. L. Ehlig, pp. 167-175, *Cordilleran Section, Geol. Soc. Am. Guidebook and Volume*, 1986.
- Roecker, S. W., Velocity structure in the Izu-Bonin seismic zone and the depth of the olivine-spinel phase transition in the slab, *J. Geophys. Res.*, 90, 7771-7794, 1985.
- Rogers, A. M., J. C. Tinsley, and W. W. Hays, The issues surrounding the effects of geologic conditions on the intensity of ground shaking, in *Proc. of Conf. XXII, A Workshop on "Site-Specific Effects of Soil and Rock on Ground Motion and the Implications for Earthquake-Resistant Design,"* edited by W. W. Hays, pp. 32-67, U.S. Geol. Surv. Open-File Rep. 83-845, 1983.
- Rogers, A. M., R. D. Borcherdt, P. A. Covington, and D. M. Perkins, A comparative ground response study near Los Angeles using recordings of Nevada nuclear tests and the 1971 San Fernando earthquake, *Bull. Seismol. Soc. Am.*, 74, 1925-1949, 1984.
- Rogers, A. M., D. L. Carver, W. W. Hays, K. W. King, and R. D. Miller, Preliminary estimates of geographic variation in relative ground shaking in the Wasatch front urban corridor, in *Proc. of Conf. XXVI, A Workshop on "Evaluation of Regional and Urban Earthquake Hazards and Risk in Utah,"* edited by W. W. Hays and P. L. Gori, pp. 547-556, U.S. Geol. Surv. Open-File Rep. 84-763, 1984.
- Rogers, A. M., J. C. Tinsley, and R. D. Borcherdt, Geographic variation in ground shaking as a function of changes in near-surface properties and geologic structure near Los Angeles, California, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 737-744, San Francisco, CA, 1984.
- Rogers, A. M., J. C. Tinsley, and R. D. Borcherdt, Predicting relative ground response, in *Evaluating Earthquake Hazards in the Los Angeles Region*, edited by J. I.

- Ziony, pp. 221-247, *U.S. Geol. Surv. Prof. Pap.* 1360, 1985.
- Rohay, A. C., Control of subducted slab geometry beneath the Washington Cascades by continental deformation, *Eos (Trans. Amer. Geophys. Un.)*, 63, 1023, 1982.
- Rohay, A., Crust and mantle structure of the north Cascades range, Washington, Ph.D. thesis, 163 pp., Univ. of Wash., Seattle, WA, 1982.
- Rojahn, C., The inter-relationship between ground motion spectra, building period, number of stories, and maximum interstory drift: a basis for evaluating earthquake damage potential, in *Critical Aspects of Earthquake Ground Motion and Building Damage Potential, ATC-10-1*, pp. 89-94, Applied Tech. Council, Redwood City, CA, 1984.
- Romanowicz, B., M. Cara, J. Fels, and D. Rouland, GEOSCOPE: A French initiative in long-period three-component global seismic networks, *Eos (Trans. Amer. Geophys. Un.)*, 67, 753-754, 1984.
- Rosa, J. W. C., and K. Aki, Regionalized Rayleigh wave phase and group velocity, *Eos (Trans. Amer. Geophys. Un.)*, 67, 306-307, 1986.
- Rowlett, H., and D. W. Forsyth, Recent faulting and microearthquakes at the intersection of the Vema fracture zone and the Mid Atlantic ridge, *J. Geophys. Res.*, 89, 6079-6094, 1984.
- Royden, L., F. Horvath, and J. Rumpf, Evolution of the Pannonian basin system, I. Tectonics, *Tectonics*, 2, 63-90, 1983.
- Rudnicki, J. W., Slip on an impermeable fault in a fluid-saturated rock mass, in *Earthquake Source Mechanics, Maurice Ewing Ser.*, vol. 6, edited by S. Das et al., pp. 81-89, AGU, Washington, DC, 1986.
- Ruff, L.J., Fault asperities inferred from seismic body waves, in *Earthquakes: Observation, Theory, and Interpretation, Proc. Intn'l. School Phys. LXXXV*, edited by H. Kanamori and E. Boschi, pp. 251-267, North-Holland, Amsterdam, NY, 1983.
- Ruff, L., and H. Kanamori, Seismic coupling and uncoupling at subduction zones, *Tectonophysics*, 99, 99-117, 1983.
- Ruff, L., and H. Kanamori, The rupture process and asperity distribution of three great earthquakes from long-period diffracted P-waves, *Phys. Earth Planet. Inter.*, 31, 202-230, 1983.
- Ruff, L., and E. Lettin, Short period P wave amplitudes and the variability of the core shadow zone, *Eos (Trans. Amer. Geophys. Un.)*, 65, 999, 1984.
- Ruina, A., Slip instability and state variable friction laws, *J. Geophys. Res.*, 88, 10359-10370, 1983.
- Rundle, J. B., and J. H. Whitcomb, A model for deformation in Long Valley, California, 1980-1983, *J. Geophys. Res.*, 89, 9371-9380, 1984.
- Rundle, J. B., H. Kanamori, and K. C. McNally, An inhomogeneous fault model for gaps, asperities, barriers, and seismicity migration, *J. Geophys. Res.*, 89, 10219-10231, 1984.
- Rundle, J. B., G. J. Elbring, R. P. Striker, J. T. Finger, C. C. Carson, M. C. Walck, W. L. Ellsworth, D. P. Hill, P. Malin, E. Tono, M. Robertson, S. Kuhlman, T. McEvilly, R. Clymer, S. B. Smithson, S. Deemer, R. Johnson, T. Henyey, E. Hauksson, P. Leahy, J. McCraney, and E. Kissling, Seismic imaging in Long Valley, California, by surface and borehole techniques: an investigation of active tectonics, *Eos (Trans. Amer. Geophys. Un.)*, 66, 194-200, 1985.
- Ryall, A., and F. Ryall, Spasmodic tremor and possible magma injection in Long Valley caldera, eastern California, *Science*, 219, 1432-1433, 1983.
- Rydelek, P. A., and L. Knopoff, Spectral analysis of gapped data: search for ISI of the south pole, *J. Geophys. Res.*, 89, 1899-1902, 1984.
- Rymer, M. J., and W. L. Ellsworth, Mechanics of the May 2, 1983, Coalinga, California earthquake: an introduction, in *Proc. of Workshop XXVII, Mechanics of the May 2, 1983 Coalinga Earthquake*, edited by M. J. Rymer and W. L. Ellsworth, pp. 1-3, U.S. Geol. Surv. Open-File Rep. 85-44, 1985.
- Rymer, M. J., K. K. Harms, J. J. Lienkaemper, and M. M. Clark, Rupture of the Nunez fault during the Coalinga earthquake sequence, in *Proc. of Workshop XXVII, Mechanics of the May 2, 1983 Coalinga Earthquake*, edited by M. J. Rymer and W. L. Ellsworth, pp. 294-312, U.S. Geol. Surv. Open-File Rep. 85-44, 1985.
- Sacks, I. S., The subduction of young lithosphere, *J. Geophys. Res.*, 88, 3355-3366, 1983.
- Sacks, I. S., and J. A. Snee, Seismological determinations of the subcrustal lithosphere, in *Structure and Evolution of the Continental Lithosphere*, edited by H. N. Pollack and V. Rama Murthy, pp. 3-37, Pergamon Press, NY, 1984.
- Sadigh, K., Considerations in the development of site-specific spectra, in *Proc. of Conf. XXII, A Workshop on "Site-Specific Effects of Soil and Rock on Ground Motion and*

- the Implications for Earthquake-Resistant Design*, edited by W. W. Hays, pp. 423-458, *U.S. Geol. Surv. Open-File Rep. 83-845*, 1983.
- Safak, E., and D. M. Boore, On nonstationary stochastic models for earthquakes, in *Proc. of 3rd U.S. Nat. Conf. on Earthquake Engin.*, vol. 1, pp. 137-148, Charleston, SC, 1986.
- Saikia, C. K., Waveform modeling of two earthquakes ($M \approx 1.1$) of July 1983 from the Miramichi aftershock zone, *Bull. Seismol. Soc. Am.*, **76**, 725-732, 1986.
- Saikia, C. K., and R. B. Herrmann, Application of waveform modeling to determine focal mechanisms of four 1982 Miramichi aftershocks, *Bull. Seismol. Soc. Am.*, **75**, 1021-1040, 1985.
- Saikia, C. K., and R. B. Herrmann, Moment-tensor solutions for three 1982 Arkansas swarm earthquakes by waveform modeling, *Bull. Seismol. Soc. Am.*, **76**, 709-723, 1986.
- Sailor, R. V., and E. A. Okal, Application of SEASAT data in seismotectonic studies of the south-central Pacific, *J. Geophys. Res.*, **88**, 1572-1580, 1983.
- Samuel, P., Why the U.S. insists on on-site checks of nuclear testing, *Defense Week*, **6**, no. 32, pp. 1 & 7, August 5, 1985.
- Sanders, C. O., Location and configuration of magma bodies beneath Long Valley, California, determined from anomalous earthquake signals, *J. Geophys. Res.*, **89**, 8287-8302, 1984.
- Sanders, C. O., and H. Kanamori, A seismotectonic analysis of the Anza seismic gap, San Jacinto fault zone, southern California, *J. Geophys. Res.*, **89**, 5873-5890, 1984.
- Sanders, C. O. and F. Ryall, Location and configuration of magma bodies beneath Long Valley, California, determined from anomalous earthquake signals, *Geophys. Res. Lett.*, **10**, 690-692, 1983.
- Sanders, C., D. Rinn, and H. Kanamori, Anomalous shear wave attenuation in the shallow crust beneath the Indian Wells Valley-Cuso region, California (abs.), *Eos (Trans. Amer. Geophys. Un.)*, **65**, 1009, 1984.
- Sanders, C., H. Magistrale, and H. Kanamori, Rupture patterns and preshocks of large earthquakes in the southern San Jacinto fault zone, *Bull. Seismol. Soc. Am.*, **76**, 1187-1206, 1986.
- Sands, J. I., R. S. Norris, and T. B. Cochran, Known Soviet nuclear explosions, 1949-1985, preliminary list, Working Papers, Nuclear Weapons Databook, Natural Resources Defense Council, Washington, DC, 50 pp., 1986.
- Sato, M., A. J. Sutton, and K. A. McGee, Anomalous hydrogen emissions from the San Andreas fault observed at the Cienega Winery, central California, *Pageoph.*, **122**, 376-391, 1984/85.
- Sato, M., A. J. Sutton, K. A. McGee, and S. Russell-Robinson, Monitoring of hydrogen along the San Andreas and Calaveras faults in central California in 1980-1984, *J. Geophys. Res.*, **91**, 12315-12326, 1986.
- Sato, T., and T. Hirasawa, Body wave spectra from propagating shear cracks, *J. Phys. Earth*, **21**, 415-431, 1973.
- Sauber, J., K. McNally, J. C. Pechmann, and H. Kanamori, Seismicity near Palmdale, California, and its relation to strain changes, *J. Geophys. Res.*, **88**, 2213-2219, 1983.
- Sauber, J., W. Thatcher, and S. C. Solomon, Geodetic measurement of deformation in the central Mojave desert, California, *J. Geophys. Res.*, **91**, 12683-12693, 1986.
- Sauter, A. W., L. M. Dorman, and a. E. Schreiner, A study of sea floor structure using ocean bottom shots and receivers, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 673-681, Plenum Press, NY, 1986.
- Savage, J. C., and R. S. Cockerham, Earthquake swarm in Long Valley caldera, California, January 1983: evidence for dike inflation, *J. Geophys. Res.*, **89**, 8315-8325, 1984.
- Savage, J. C., and M. Lisowski, Deformation within the White Mountain seismic gap, California-Nevada, 1972-1982, *J. Geophys. Res.*, **89**, 7671-7687, 1984.
- Savage, J. C., and M. Lisowski, Strain accumulation in the Shumagin seismic gap, Alaska, *J. Geophys. Res.*, **91**, 7447-7454, 1986.
- Savage, J. C., and M. Lisowski, Strain accumulation in the Yakataga seismic gap, southern Alaska, *J. Geophys. Res.*, **91**, 9495-9506, 1986.
- Savage, J. C., M. Lisowski, and W. H. Prescott, Reply, *J. Geophys. Res.*, **91**, 7559-7560, 1986.
- Savage, J. C., M. Lisowski, and W. H. Prescott, Strain accumulation in the Shumagin and Yakataga seismic gaps, Alaska, *Science*, **231**, 585-587, 1986.
- Savage, J. C., W. H. Prescott, and G. H. Gu, Strain accumulation in southern California, 1973-1984, *J. Geophys. Res.*, **91**, 7455-7473, 1986.
- Savage, M. K., and R. P. Meyer, Aftershocks of an $M = 4.2$ earthquake in Hawaii and comparison with long-term studies of the

- same volume, *Bull. Seismol. Soc. Am.*, 75, 759-777, 1985.
- Savy, J., D. Bernreuter, and J. C. Chen, A generic method for modeling site effects in seismic hazard analyses, in *Proc. of Conf. XXXIV. A Workshop on "Probabilistic Earthquake Hazards Assessments,"* edited by W. W. Hays, pp. 249-284, U.S. Geol. Surv. Open-File Rep. 86-185, 1986.
- Sbar, M. L., An explanation for contradictory geodetic strain and fault plane solution data in western North America, *Geophys. Res. Lett.*, 10, 171-180, 1983.
- Sbar, M. L., and S. M. DuBois, Attenuation of intensity for the 1887 northern Sonora, Mexico earthquake, *Bull. Seismol. Soc. Am.*, 74, 2613-2628, 1984.
- Scandoni, R., and S. D. Malone, Magma supply, magma discharge, and readjustment of the feeding system of Mount St. Helens during 1980, *J. Volcan. and Geotherm. Res.*, 22, 239-262, 1985.
- Scharnberger, C. K., and B. F. Howell, Jr., Intensities and structural setting of the earthquakes of 19 April and 23 April, 1984 Lancaster County, Pennsylvania, *Earthquake Notes*, 56, 43-46, 1985.
- Scherbaum, F., and C. Kisslinger, Variations of apparent stresses and stress drops prior to the earthquake of 6 May 1984 ($m_b = 5.8$) in the Adak seismic zone, *Bull. Seismol. Soc. Am.*, 74, 2577-2592, 1984.
- Schilt, F. S., L. D. Brown, J. E. Oliver, and S. Kaufman, Subsurface structure near Charleston, South Carolina—results of CO-CORP reflection profiling in the Atlantic coastal plain, in *Studies Related to the Charleston, South Carolina earthquake of 1886—Tectonics and Seismicity*, edited by G. S. Gohn, pp. H1-H19, U.S. Geol. Surv. Prof. Pap. 1913, 1983.
- Schlager, W., J. A. Austin, W. Corso, C. L. McNulty, E. Fluegel, O. Renz, and J. C. Steinmetz, Early Cretaceous platform reentrant and escarpment erosion in the Bahamas, *Geology*, 12, 147-150, 1984.
- Schlesinger-Miller, E., N. L. Barstow, and A. L. Kafka, The July 1981 earthquake sequence near Cornwall, Ontario and Massena, New York, *Earthquake Notes*, 54, 11-26, 1983.
- Schlue, J. W., P. J. Singer, and C. L. Edwards, Shear wave structure of the upper crust of the Albuquerque-Belen basin from Rayleigh wave phase velocities, *J. Geophys. Res.*, 91, 6277-6281, 1986.
- Scholl, R. E., Overturning of slender rigid bodies during earthquakes, in *Critical Aspects of Earthquake Ground Motion and Building Damage Potential*, ATC-10-1, pp. 105-113, Applied Tech. Council, Redwood City, CA, 1984.
- Schouten, H., and K. D. Klitgord, The memory of the accreting plate boundary and the continuity of fracture zones, *Earth Planet. Sci. Lett.*, 59, 255-266, 1982.
- Scholz, C. H., Earthquake prediction and seismic hazard, *Earthq. Pred. Res.*, 3, 11-23, 1985.
- Scholz, C. H., The Black Mountain asperity: seismic hazard of the southern San Francisco peninsula, California, *Geophys. Res. Lett.*, 12, 717-719, 1985.
- Scholz, C. H., and C. A. Aviles, The fractal geometry of faults and faulting, in *Earthquake Source Mechanics*, Maurice Ewing Ser., vol. 6, edited by S. Das et al., pp. 147-155, AGU, Washington, DC, 1986.
- Scholz, C. H., C. A. Aviles, and S. G. Wesnousky, Scaling differences between large interplate and intraplate earthquakes, *Bull. Seismol. Soc. Am.*, 76, 65-70, 1986.
- Schoof, C. C., R. N. Haar, and R. J. Geller, Normal mode synthetics of strong ground motion, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 449-456, San Francisco, CA, 1984.
- Schubert, C. Neotectonics of Bocono fault, western Venezuela, *Tectonophysics*, 85, 205-220, 1983.
- Schubert, C., Basin formation along the Bocono-Moron-El Pilar fault system, Venezuela, *J. Geophys. Res.*, 89, 5711-5718, 1984.
- Schulz, S., R. O. Burford, and B. Mavko, Influence of seismicity and rainfall on episodic creep on the San Andreas fault system in central California, *J. Geophys. Res.*, 88, 7475-7484, 1983.
- Schumm, S. A., Alluvial River response to active tectonics, in *Active Tectonics*, pp. 80-94, National Academy Press, Washington, DC, 1986.
- Schwartz, D. P., and K. J. Coppersmith, Fault behavior and characteristic earthquakes: examples from the Wasatch and San Andreas fault zones, *J. Geophys. Res.*, 89, 5681-5698, 1984.
- Schwartz, D. P., and K. J. Coppersmith, Seismic hazards: new trends in analysis using geologic data, in *Active Tectonics*, pp. 215-230, National Academy Press, Washington, DC, 1986.
- Schwartz, D. P., and A. J. Crone, The 1983 Borah Peak earthquake: a calibration event for quantifying earthquake recurrence and fault behavior on Great basin normal faults,

- in *Proc. of Workshop XXVIII, On the Borah Peak, Idaho, Earthquake*, vol. A, edited by R. S. Stein and R. C. Bucknam, pp. 153-160, U.S. Geol. Surv. Open-File Rep. 85-290, 1985.
- Schwartz, D. P., K. L. Hanson, and F. H. Swan, III, Paleoseismic investigations along the Wasatch fault zone: an update, *Spec. Stud. Utah Geol. Mineral Surv.*, 62, 45-49, 1983.
- Schwartz, S., and T. Lay, Comparison of long-period surface wave amplitude and phase anomalies for two models of global lateral heterogeneity, *Geophys. Res. Lett.*, 12, 231-234, 1985.
- Schwartz, S. Y., and L. J. Ruff, The 1968 Tokachi-Oki and the 1969 Kurile Island earthquakes: variability in the rupture process, *J. Geophys. Res.*, 90, 8613-8626, 1985.
- Scott, P., and D. Helmberger, Applications of the Kirchhoff-Helmholtz integral to problems in seismology, *Geophys. J. R. Astron. Soc.*, 72, 237-254, 1983.
- Scott, W. E., K. L. Pierce, and M. H. Hait, Jr., Quaternary tectonic setting of the 1983 Borah Peak earthquake, central Idaho, *Bull. Seismol. Soc. Am.*, 75, 1053-1066, 1985.
- Sebrier, M., J. L. Mercier, F. Megard, G. Laubacher, and E. Carey-Gailhardis, Quaternary normal and reverse faulting and the state of stress in the central Andes of south Peru, *Tectonics*, 4, 739-780, 1985.
- Seeber, L., Large scale thin-skin tectonics, *Rev. Geophys.*, 21, 1528-1538, 1985.
- Seeber, L., and J. G. Armbruster, Some elements of continental subduction along the Himalayan front, *Tectonophysics*, 105, 263-278, 1984.
- Seeber, L., and V. Gornitz, River profiles along the Himalayan arc as indicators of active tectonics, *Tectonophysics*, 92, 335-367, 1983.
- Seed, H. B., R. T. Wong, I. M. Idriss, and K. Tokimatsu, Moduli and damping factors for dynamic analyses of cohesionless soils, *J. Geotech. Engin. Div., Am. Soc. Civil Engin.*, 112, 1016-1032, 1986.
- Segall, P., and R. Harris, Slip deficit on the San Andreas fault at Parkfield, California, as revealed by inversion of geodetic data, *Science*, 223, 1409-1413, 1986.
- Segall, P., and D. D. Pollard, Nucleation and growth of strike-slip faults in granite, *J. Geophys. Res.*, 88, 555-568, 1983.
- Sen, M. K., and L. N. Frazer, Kirchhoff-Helmholtz reflection seismograms in a laterally inhomogeneous multi-layered elastic medium—2. Computations, *Geophys. J. R. Astron. Soc.*, 82, 415-437, 1985.
- Sen, M. K., and L. N. Frazer, Synthetic seismograms using multifold path integrals, Part II: Computations, *Geophys. J. R. Astron. Soc.*, in press, 1986.
- Sereno, T., The propagation of high frequency seismic energy through oceanic lithosphere, Ph.D. thesis, 168 pp., Univ of Calif., San Diego, CA, 1986.
- Sereno, T., and J. Orcutt, Synthesis of realistic oceanic P_n wave trains, *J. Geophys. Res.*, 90, 12755-12776, 1985.
- Sereno, T., and J. Orcutt, Synthetic seismogram modelling of the oceanic P_n phase, *Nature*, 316, 246-248, 1985.
- Sereno, T., and J. Orcutt, Synthetic P_n and S_n phases and the frequency dependence of Q of oceanic lithosphere, *J. Geophys. Res.*, in press, 1986.
- Sereno, T., and J. Orcutt, The propagation of P_n , in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 579-587, Plenum Press, NY, 1986.
- Serpa, L., B. de Voogd, J. Willemin, J. Oliver, S. Kaufman, L. Brown, E. Hauser, L. Wright, and B. Troxel, Late Cenozoic fault patterns and magma migration in Death Valley from COCORP seismic profiles (abs.), *Eos (Trans. Amer. Geophys. Un.)*, 65, 985, 1984.
- Serpa, L., T. Setzer, H. Farmer, L. Brown, J. Oliver, S. Kaufman, J. Sharp, and D. Steeples, Structure of the southern Keweenawan rift from COCORP surveys across the midcontinent geophysical anomaly in northeastern Kansas, *Tectonics*, 3, 367-384, 1984.
- Sexton, J. L., L. W. Braile, W. J. Hinze, and M. J. Campbell, Seismic reflection profiling studies of a buried Precambrian rift beneath the Wabash Valley fault zone, *Geophysics*, 51, 640-660, 1986.
- Shahabi, M., and M. Mostaghel, Strong ground motion duration and effective cyclic acceleration, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 843-850, San Francisco, CA, 1984.
- Shakal, A. F., and R. D. Borcherdt, Review of recent strong-motion data, in *Strong Ground Motion Simulation and Earthquake Engineering Applications*, Publ. 85-02, edited by R. E. Scholl and J. L. King, pp. 9-1-9-12, Earthquake Engin. Res. Inst., El Cerrito, CA, 1985.
- Shakal, A. F., and M. J. Huang, Standard tape format for CSMIP strong-motion data tapes, *Rep. OSMS 85-03*, 26 pp., Office of Strong

- Motion Studies, Calif. Div. Mines and Geol., Sacramento, CA, 1985.
- Shakal, A. F., and R. D. McJunkin, Preliminary summary of CDMG strong-motion records from the 2 May 1983 Coalinga, California, earthquake, *Rep. OSMS 83-5.2*, 49 pp., Office of Strong Motion Studies, Calif. Div. Mines and Geol., Sacramento, CA, 1983.
- Shakal, A. F., and J. T. Ragsdale, Strong-motion data from the Coalinga, California earthquake and aftershocks, in *The Coalinga, California Earthquakes*, edited by J. H. Bennett and R. W. Sherburne, pp. 321-335, *Special Publ. 66*, Calif. Div. Mines and Geol., Sacramento, CA, 1983.
- Shakal, A. F., and J. T. Ragsdale, Acceleration, velocity, and displacement noise analysis for the CSMIP accelerogram digitization system, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 111-118, San Francisco, CA, 1984.
- Shakal, A. F., R. W. Sherburne, and D. L. Parke, CDMG strong-motion records from the Morgan Hill, California earthquake of 24 April 1984, *Rep. OSMS 84-7*, 101 pp., Office of Strong Motion Studies, Calif. Div. Mines and Geol., Sacramento, CA, 1984.
- Shakal, A. F., R. W. Sherburne, and D. L. Parke, CSMIP strong-motion records from the Bishop, California earthquake of 23 November 1984, *Rep. OSMS 84-12*, 30 pp., Office of Strong Motion Studies, Calif. Div. Mines and Geol., Sacramento, CA, 1984.
- Shakal, A. F., R. W. Sherburne, and D. L. Parke, Principal features of the strong-motion data from the 1984 Morgan Hill earthquake, in *The 1984 Morgan Hill, California Earthquake*, edited by J. H. Bennett and R. W. Sherburne, pp. 249-264, *Special Publ. 68*, Calif. Div. Mines and Geol., Sacramento, CA, 1984.
- Shakal, A. F., M. J. Huang, D. L. Parke, and R. W. Sherburne, Processed data from the strong-motion records of the Morgan Hill earthquake of 24 April 1984, Part I. Ground-response records, *Rep. OSMS 85-04*, 249 pp., Office of Strong Motion Studies, Calif. Div. Mines and Geol., Sacramento, CA, 1986.
- Shapiro, I. I., Use of space techniques for geodesy, in *Earthquakes: Observation, Theory, and Interpretation*, *Proc. Intn'l. School Phys. LXXXV*, edited by H. Kanamori and E. Boschi, pp. 530-568, North-Holland, Amsterdam, NY, 1983.
- Sharma, M. P., and A. G. Brady, Characterization of earthquake ground motion, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 851-858, San Francisco, CA, 1984.
- Sharp, R. V., M. J. Rymer, and D. M. Morton, Trace-fractures on the Banning fault created in association with the 1986 North Palm Springs earthquake, *Bull. Seismol. Soc. Am.*, 76, 1838-1843, 1986.
- Sharry, J., R. T. Langan, D. B. Jovanovich, G. M. Jones, N. R. Hill, and T. M. Guidish, Enhanced imaging of the COCORP seismic line, Wind River Mountains, in *Reflection Seismology: A Global Perspective*, vol. 13, edited by M. Barazangi and L. Brown, pp. 223-236, AGU Geodynamics Series, Washington, DC, 1986.
- Shaw, P. R., The accuracy of models derived by WKBJ waveform inversion, *Geophys. J. R. Astron. Soc.*, 85, 291-313, 1986.
- Shaw, P. R., and J. A. Orcutt, Waveform inversion of seismic refraction data and application to young Pacific crust, *Geophys. J. R. Astron. Soc.*, 82, 375-414, 1985.
- Shearer, C. F., Minutes of the National Earthquake Prediction Evaluation Council July 26-27, 1985, Menlo Park, California, *U.S. Geol. Surv. Open-File Rep. 85-754*, 445 pp., 1985.
- Shearer, C. F., Minutes of the National Earthquake Prediction Evaluation Council March 29-30, 1985, Pasadena, California, *U.S. Geol. Surv. Open-File Rep. 85-507*, 193 pp., 1985.
- Shearer, C. F., Minutes of the National Earthquake Prediction Evaluation Council November 16-17, 1984, Menlo Park, California, *U.S. Geol. Surv. Open-File Rep. 85-201*, 81 pp., 1985.
- Shearer, C. F., Minutes of the National Earthquake Prediction Evaluation Council September 8 & 9, 1985, Anchorage, Alaska, *U.S. Geol. Surv. Open-File Rep. 86-92*, 265 pp., 1986.
- Shearer, P. M., Anisotropy in the oceanic lithosphere—the Ngendei seismic refraction experiment, Ph.D. thesis, Univ. of Calif., San Diego, CA, 1986.
- Shearer, P. M., and D. H. Oppenheimer, A dipping Moho and crustal low-velocity zone from Pn arrivals at the Geysers-Clear Lake, California, *Bull. Seismol. Soc. Am.*, 72, 1551-1566, 1982.
- Shearer, P., and J. Orcutt, Anisotropy in the oceanic lithosphere—theory and observations from the Ngendei seismic refraction experiment in the south-west Pacific, *Geophys. J. R. Astron. Soc.*, 80, 493-526, 1985.
- Shearer, P. M., and J. Orcutt, Compressional and shear wave anisotropy in the lithosphere: the Ngendei seismic refraction experiment, *Geophys. J. R. Astron. Soc.*, in press, 1986.

- Shearer, P. M., R. G. Adair, J. A. Orcutt, and T. H. Jordan, Simultaneous borehole and ocean bottom seismometer recordings of earthquakes and explosions—results from the 1983 Ngendei experiment at DSDP Hole 595B, *Initial Reports of the Deep Sea Drilling Project 88/91, in press*, 1986.
- Shearer, P. M., J. A. Orcutt, T. H. Jordan, R. B. Whitmarsh, I. I. Kim, R. G. Adair, and M. S. Burnett, The Ngendei seismic refraction experiment at DSDP Hole 595B—ocean bottom seismometer data and evidence for crustal and upper mantle anisotropy, *Initial Reports of the Deep Sea Drilling Project, 88/91, in press*, 1986.
- Shedlock, K. M., L. M. Jones, and M. Xiufang, Determination of elastic wave velocities and relative hypocenter locations using refracted waves, II. Application to the Haicheng, China, aftershock sequence, *Bull. Seismol. Soc. Am.*, 75, 427–439, 1985.
- Sherburne, R., K. McNally, E. Brown, and A. Aburto, The mainshock-aftershock sequence of 2 May 1983: Coalinga, California, in *The 1983 Coalinga, California Earthquakes*, edited by J. H. Bennett and R. W. Sherburne, pp. 275–292, *Special Publ. 66*, Calif. Div. Mines and Geol., Sacramento, CA, 1983.
- Sheridan, R. E., L. G. Bates, T. H. Shipley, and J. T. Crosby, Seismic stratigraphy in the Blake-Bahama basin and the origin of horizon D', *Initial Reports of the Deep Sea Drilling Project, 76*, 667–683, 1983.
- Sheriff, S. D., and M. C. Stickney, Crustal structure of southwestern Montana and east-central Idaho: results of a reversed seismic refraction line, *Geophys. Res. Lett.*, 11, 299–302, 1984.
- Shimamoto, T., and J. M. Logan, Velocity-dependent behavior of simulated halite shear zones: an analog for silicates, in *Earthquake Source Mechanics, Maurice Ewing Ser.*, vol. 6, edited by S. Das et al., pp. 49–63, AGU, Washington, DC, 1986.
- Shinozuka, M., H. Kameda, and T. Koike, Ground strain estimation for seismic risk analysis, *J. Engin. Mech. Div., Am. Soc. Civil Engin.*, 109, 175–191, 1983.
- Shipley, T. H., Physical properties, synthetic seismograms and seismic reflections: correlations at Deep Sea Drilling Project Site 534, Blake-Bahama basin, *Initial Reports of the Deep Sea Drilling Project, 76*, 653–665, 1983.
- Shipley, T. H., and G. F. Moore, Sediment accretion, subduction, and dewatering at the base of the trench slope off Costa Rica: a seismic reflection view of the decollement, *J. Geophys. Res.*, 91, 2019–2028, 1986.
- Shore, M. J., A seismic Q-profile for the lower mantle from short period P waves, *Nature*, 310, 399–401, 1984.
- Shudofsky, G. N., Some mechanisms and focal depths of east African earthquakes using Rayleigh-wave inversion and body-wave modeling, *Geophys. J. R. Astron. Soc.*, 83, 563–614, 1985.
- Shyam Sunder, S., and J. J. Connor, A new procedure for processing strong-motion earthquake signals, *Bull. Seismol. Soc. Am.*, 72, 643–661, 1982.
- Sibson, R. H., Roughness at the base of the seismogenic zone: contributing factors, *J. Geophys. Res.*, 89, 5791–5799, 1984.
- Sibson, R. H., Stopping of earthquake ruptures at dilatational fault jogs, *Nature*, 316, 248–251, 1985.
- Sibson, R. H., Brecciation processes in fault zones: inferences from earthquake rupturing, *Pure Appl. Geophys.*, 124, 159–175, 1986.
- Sibson, R. H., Earthquakes and lineament infrastructure, *Phil. Trans. R. Soc. Lond.*, A317, 63–79, 1986.
- Sibson, R. H., Earthquakes and rock deformation in crustal fault zones, *Ann. Rev. Earth Planet Sci.*, 14, 149–176, 1986.
- Sibson, R. H., Rupture interaction with fault jogs, in *Earthquake Source Mechanics, Maurice Ewing Ser.*, vol. 6, edited by S. Das et al., pp. 157–167, AGU, Washington, DC, 1986.
- Sibson, R. H., The fractal geometry of faults and faulting, in *Earthquake Source Mechanics, Maurice Ewing Ser.*, vol. 6, edited by S. Das et al., pp. 157–167, AGU, 1986.
- Sieh, K. E., Lateral offsets and revised dates of large prehistoric earthquakes at Pallett creek, southern California, *J. Geophys. Res.*, 89, 7641–7670, 1984.
- Sieh, K. E., and R. H. Jahns, Holocene activity of the San Andreas fault at Wallace creek, California, *Geol. Soc. Am. Bull.*, 95, 883–896, 1984.
- Silliman, A., and S. Billington, Seismicity associated with a recent earthquake of m_b 5.8 beneath Adak Canyon, central Aleutian Islands, *Bull. Seismol. Soc. Am.*, 85, 1853–1858, 1985.
- Silver, E. A., D. Reed, R. McCaffrey, and Y. Joyodiwiryo, Back arc thrusting in the eastern Sunda arc, Indonesia: a consequence of arc-continent collision, *J. Geophys. Res.*, 88, 7429–7448, 1983.
- Silver, P., Retrieval of source-extent parameters and the interpretation of corner frequency,

- Bull. Seismol. Soc. Am.*, 73, 1499-1511, 1983.
- Silver, P. G., and W. W. Chan, Observations of body wave multipathing from broadband seismograms: evidence for lower-mantle slab penetration beneath the sea of Okhotsk, *J. Geophys. Res.*, in press, 1986.
- Silver, P., and T. Masuda, A source extent analysis of the Imperial Valley earthquake of October 15, 1979, and the Victoria earthquake of June 9, 1980, *J. Geophys. Res.*, 90, 7639-7651, 1985.
- Silverstein, B., Processed strong-motion records from Monasavu dam, Fiji; earthquakes of February 13, 14, and 23, 1983, *U.S. Geol. Surv. Open-File Rep. 85-375*, 58 pp., 1985.
- Silverstein, B., Processed strong-motion records from the Coalinga, California aftershock of July 9, 1983, 0740 GMT, *U.S. Geol. Surv. Open-File Rep. 85-584*, 169 pp., 1985.
- Silverstein, B., and A. G. Brady, Processed strong-motion records from the Coalinga, California, aftershock of July 22, 1983, 0239 GMT, *U.S. Geol. Surv. Open-File Rep. 85-250*, 229 pp., 1985.
- Silverstein, B., A. G. Brady, and P. N. Mork, Processed strong-motion records from Bougainville Island, Papua New Guinea; earthquakes of December 13, 1981 and March 18, 1983, *U.S. Geol. Surv. Open-File Rep. 86-264*, 148 pp., 1986.
- Silverstein, B. L., A. G. Brady, and P. N. Mork, Processed strong-motion records from the southern Alaska earthquake of January 1, 1975, 0355 GMT, *U.S. Geol. Surv. Open-File Rep. 86-191*, 99 pp., 1986.
- Simpson, D. W., Triggered earthquakes, *Ann Rev. Earth Planet Sci.*, 14, 21-42, 1986.
- Singh, J. P., Characteristics of near-field ground motion and their importance in building design, in *Critical Aspects of Earthquake Ground Motion and Building Damage Potential*, ATC-10-1, pp. 23-42, Applied Tech. Council, Redwood City, CA, 1984.
- Singh, J. P., Earthquake ground motions: implications for designing structures and reconciling structural damage, *Earthquake Spectra*, 1, 239-270, 1985.
- Singh, J. P., A simple method for generating synthetic time histories for design of base isolation systems, in *Proc. of a Seminar and Workshop on Base Isolation and Passive Energy Dissipation*, ATC-17, pp. 391-402, San Francisco, CA, Applied Tech. Council, Redwood City, CA, 1986.
- Singh, S., and R. B. Herrmann, Regionalization of crustal coda Q in the continental United States, *J. Geophys. Res.*, 88, 527-538, 1983.
- Singh, S. K., M. Rodriguez, and L. Esteva, Statistics of small earthquakes and frequency of occurrence of large earthquakes along the Mexican subduction zone, *Bull. Seismol. Soc. Am.*, 73, 1779-1796, 1983.
- Singh, S. K., L. Ponce, and S. P. Nishenko, The great Jalisco, Mexico, earthquake of 1932: subduction of the Rivera plate, *Bull. Seismol. Soc. Am.*, 75, 1301-1314, 1985.
- Sinno, Y. A., and G. R. Keller, A Rayleigh wave dispersion study between El Paso, Texas and Albuquerque, New Mexico, *J. Geophys. Res.*, 91, 6168-6174, 1986.
- Sinno, Y. A., P. H. Daggett, G. R. Keller, P. Morgan, and S. H. Harder, Crustal structure of the southern Rio Grande rift determined from seismic refraction profiling, *J. Geophys. Res.*, 91, 6143-6156, 1986.
- Sinton, J. B., and L. N. Frazer, A method for the computation of finite frequency body wave synthetic seismograms in laterally varying media, *Geophys. J. R. Astron. Soc.*, 71, 37-55, 1982.
- Sinton, J. B., and D. M. Hussong, Crustal structure of a short length transform fault in the central Mariana trough, in *The Tectonic and Geological Evolution of Southeast Asian Seas and Islands*, *Geophys. Monogr. Ser.*, 27, edited by D. B. Hayes, pp. 236-254, AGU, Washington, DC, 1983.
- Sipkin, S. A., Estimation of earthquake source parameters by the inversion of waveform data: global seismicity, 1981-1983, *Bull. Seismol. Soc. Am.*, 76, 1515-1541, 1986.
- Sipkin, S. A., Interpretation of non-double-couple earthquake mechanisms derived from moment tensor inversion, *J. Geophys. Res.*, 91, 531-547, 1986.
- Sipkin, S. A., and T. H. Jordan, Frequency dependence of Q_{SCS} , *Bull. Seismol. Soc. Am.*, 69, 1055-1079, 1979.
- Sipkin, S. A., and R. E. Needham, Kinematic source parameters of the 2 May, 1983 Coalinga earthquake determined by time-dependent moment tensor inversion and an analysis of teleseismic first motions, *U.S. Geol. Surv. Prof. Pap.*, in press, 1986.
- Slemmons, D. B., and C. M. Depolo, Evaluation of active faulting and associated hazards, in *Active Tectonics*, pp. 45-62, National Academy Press, Washington, DC, 1986.
- Smalley, R. F., Jr., D. L. Turcotte, and S. A. Solla, A renormalization group approach to the stick-slip behavior of faults, *J. Geophys. Res.*, 90, 1894-1900, 1985.

- Smart, E., The low frequency spectral minimum in underground explosion P spectra, Technical Report to Defense Advanced Research Projects Agency, Teledyne-Geotech, *TGAL-TR-83-7*, Alexandria, VA, 34 pp., 1984.
- Smart, E., and E. L. McLaughlin, Discrimination by detection of the relative polarity of the entire P waveform, Final Report to Defense Advanced Research Projects Agency, Teledyne-Geotech, *TGAL-85-12*, Alexandria, VA, 31 pp., 1985.
- Smart, E., J. A. Burnett, and R. Wagner, Focusing effects on m_b at small arrays, Technical Report to Defense Advanced Research Projects Agency, Teledyne-Geotech, *TGAL-TR-84-3*, Alexandria, VA, 24 pp., 1984.
- Smith, R. B., and R. L. Bruhn, Intraplate extensional tectonics of the eastern Basin-Range: inferences on structural style from seismic reflection data, regional tectonics, and thermal-mechanical models of the brittle-ductile deformation, *J. Geophys. Res.*, **89**, 5733-5762, 1984.
- Smith, R. B., W. D. Richins, and D. I. Doser, The 1983 Borah Peak, Idaho, earthquake: regional seismicity, kinematics of faulting, and tectonic mechanism, in *Proc. of Workshop XXVIII. On the Borah Peak, Idaho, Earthquake*, vol. A, edited by R. S. Stein and R. C. Bucknam, pp. 236-263, U.S. Geol. Surv. Open-File Rep. 85-290, 1985.
- Smith, S. W., IRIS—A program for the next decade, *Eos (Trans. Amer. Geophys. Un.)*, **67**, 213-219, 1986.
- Smithson, S. B., R. A. Johnson, and C. A. Hurich, Crustal reflections and crustal structure, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 21-32, AGU Geodynamics Series, Washington, DC, 1986.
- Snoke, J. A., and I. S. Sacks, Seismic modeling of lateral heterogeneity at the base of the mantle, *Geophys. J. R. Astron. Soc.*, **86**, 801-814, 1986.
- Soller, D. R., R. D. Ray, and R. D. Brown, A new global crustal thickness map, *Tectonics*, **1**, 125-149, 1982.
- Somerville, P., Source scaling relations of large eastern North American earthquakes and implications for ground motions, in *Proc. of 3rd U.S. Nat. Conf. on Earthquake Engin.*, vol. 1, pp. 117-124, Charleston, SC, 1986.
- Souriau, A., On the retrieval of pure path velocities from great circle data, *Geophys. J. R. Astron. Soc.*, **80**, 783-790, 1985.
- Souriau, A., and J. H. Woodhouse, A worldwide comparison of predicted S -wave delays from a three dimensional upper mantle model with P -wave station corrections, *Phys. Earth Planet. Inter.*, **39**, 75-88, 1985.
- Spence, G. D., R. M. Clowes, and R. M. Ellis, Seismic structure across the active subduction zone of western Canada, *J. Geophys. Res.*, **90**, 6754-6772, 1985.
- Spence, W., The 1977 Sumba earthquake series: evidence for slab pull force acting at a subduction zone, *J. Geophys. Res.*, **91**, 7225-7239, 1986.
- Spencer, C. P., and E. R. Engdahl, A joint hypocentre location and velocity inversion technique applied to the central Aleutians, *Geophys. J. R. Astron. Soc.*, **72**, 399-415, 1983.
- Spiess, F. N., K. C. Macdonald, T. Atwater, R. Ballard, A. Carranza, D. Cordoba, C. Cox, V. M. Diaz Garcia, J. Francheteau, J. Guerrero, J. Hawkins, R. Haymon, R. Hessler, T. Juteau, M. Kastner, R. Larson, B. Luyendyk, J. D. MacDougall, S. Miller, W. Normark, J. Orcutt, and C. Rangin, East Pacific rise: hot springs and geophysical experiments, *Science* **207**, 1421-1433, 1980.
- Spudich, P., Calculation of ground motion time histories using Green's function summation, in *Strong Ground Motion Simulation and Earthquake Engineering Applications, Publ. 85-02*, edited by R. E. Scholl and J. L. King, pp. 19-1-19-7, Earthquake Engin. Res. Inst., El Cerrito, CA, 1985.
- Spudich, P., and U. Ascher, Calculation of complete theoretical seismograms in vertically varying media using collocation methods, *Geophys. J. R. Astron. Soc.*, **75**, 101-124, 1983.
- Spudich, P., and E. Cranswick, Direct observation of rupture propagation during the 1979 Imperial Valley earthquake using a short baseline accelerometer array, *Bull. Seismol. Soc. Am.*, **74**, 2083-2114, 1984.
- Spudich, P., and E. Cranswick, Soil strains and horizontal propagation velocities of strong ground motions observed during the 1979 Imperial Valley, California, earthquake, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 231-238, San Francisco, CA, 1984.
- Spudich, P., and L. N. Frazer, Use of ray theory to calculate high-frequency radiation from earthquake sources having spatially variable rupture velocity and stress drop, *Bull. Seismol. Soc. Am.*, **74**, 2061-2082, 1984.
- Spudich, P. A., and S. H. Hartzell, Predicting earthquake ground-motion time histories, in *Evaluating Earthquake Hazards in the*

- Los Angeles Region—An Earth Science Perspective*, edited by J. I. Ziony, pp. 249–261, U.S. Geol. Surv. Prof. Pap. 1360, 1985.
- Spudich, P., and D. Oppenheimer, Dense seismograph array observations of earthquake rupture dynamics, in *Earthquake Source Mechanics*, Maurice Ewing Ser., vol. 6, edited by S. Das et al., pp 285–296, AGU, Washington, DC, 285–296, 1986.
- Spudich, P., and J. A. Orcutt, Petrology and porosity of an oceanic crustal site: results from wave form modeling of seismic refraction data, *J. Geophys. Res.*, 85, 1409–1433, 1980.
- Stacey, F. D., and D. E. Lopper, The thermal boundary layer interpretation of D'' and its role as a plume source, *Phys. Earth Planet. Inter.*, 39, 45–55, 1983.
- Standing Committee for the Global Seismographic Network, Design goals for a new global seismographic network, report, IRIS, Inc., Washington, DC, 1985.
- Standing Committee for the Global Seismographic Network, 5-year siting plan, IRIS contribution to the global digital seismographic network, report, IRIS, Inc., Washington, DC, 1986.
- Stark, P. B., Travel time inversion: inference and regularization, Ph.D. thesis, 106 pp., Univ. of Calif., San Diego, CA, 1986.
- Stark, P. B., and C. Frohlich, The depths of the deepest deep earthquakes, *J. Geophys. Res.*, 90, 1859–1869, 1985.
- Stark, P. B., R. L. Parker, G. Masters, and J. A. Orcutt, Strict bounds on seismic velocity in the spherical Earth, *J. Geophys. Res.*, 91, 13892–13902, 1986.
- Stark, P. B., L. Parker, G. Masters, and J. A. Orcutt, Travel time constraints on core structure, *Eos (Trans. Amer. Geophys. Un.)*, 67, 311, 1986.
- Stauber, D. A., and P. A. Berge, Comparison of the P -velocity structures of Mt. Shasta, California, and Newberry volcano, Oregon, *Eos (Trans. Amer. Geophys. Un.)*, 66, 25, 1985.
- Stauber, D. A., H. M. Iyer, W. D. Mooney, and P. B. Dawson, Three-dimensional P -velocity structure of the summit caldera of Newberry volcano, Oregon, Part II, *Geothermal Resources Council Trans.*, 9, 411–415, 1985.
- Staugaard, P., QWANT: Quota with advance notification test treaty, Center for Foreign Policy Development, Working Paper #5, 20 pp., Brown Univ., Providence, RI, June 1983.
- Steacy, S. J., and C. A. Powell, An investigation of crustal and upper mantle structure beneath a portion of the southern Appalachian decollement (abs.), *Eos (Trans. Amer. Geophys. Un.)*, 66, 302, 1985.
- Steele, S. R., Anomalous radon emanation at local and regional distances preceding earthquakes in the New Madrid seismic zone and adjacent areas of the central mid-continent of North America, 1981–84, *Pageoph.*, 122, 353–368, 1984/85.
- Stefani, J. P., R. J. Geller, and G. C. Kroeger, A direct measurement of the distance between a hypocenter in a Benioff–Wadati zone and the slab–asthenosphere contact, *J. Geophys. Res.*, 87, 323–328, 1982.
- Steim, J. M., The very-broad-band seismograph, Ph.D. thesis, 184 pp., Harvard Univ., Cambridge, MA, 1986.
- Stein, J. A., Nuclear tests mean new weapons, *Bull. Atomic Sci.*, 8–11, Nov. 1986.
- Stein, R. S., Reverse slip on a buried fault during the 2 May 1983 Coalinga earthquake: evidence from geodetic elevation changes, in *The 1983 Coalinga, California Earthquakes*, edited by J. H. Bennett and R. W. Sherburne, pp. 151–163, *Special Publ. 66*, Calif. Div. Mines and Geol., Sacramento, CA, 1983.
- Stein, R. S., Evidence for surface folding and subsurface fault slip from geodetic elevation changes associated with the 1983 Coalinga, California, earthquake, in *Proc. of Workshop XXVII, Mechanics of the May 2, 1983 Coalinga Earthquake*, edited by M. J. Rymer and W. L. Ellsworth, pp. 225–253, U.S. Geol. Surv. Open-File Rep. 85-44, 1985.
- Stein, R. S., and S. E. Barrientos, Planar high-angle faulting in the Basin and Range: geodetic analysis of the 1983 Borah Peak, Idaho, earthquake, *J. Geophys. Res.*, 90, 11355–11366, 1985.
- Stein, R. S., and G. C. P. King, Seismic potential revealed by surface folding: 1983 Coalinga, California earthquake, *Science*, 224, 869–872, 1984.
- Stein, R. S., and M. Lisowski, The 1979 Home-stead Valley earthquake sequence, California: control of aftershocks and postseismic deformation, *J. Geophys. Res.*, 88, 6477–6490, 1983.
- Stein, S., and E. A. Okal, Seismological studies of the deformation of oceanic lithosphere, in *Space and Geodynamics, Special Publication 66*, edited by A. J. Anderson and A. Cazenave, pp. 407–450, Academic Press, London, 1986.
- Stein, S., and D. A. Wiens, Depth determination for shallow teleseismic earthquakes: methods

- and results, *Rev. Geophys.*, 24, 806-832, 1986.
- Stein, S., J. F. Engeln, D. A. Wiens, R. C. Speed, and K. Fujita, Slow subduction of old lithosphere in the Lesser Antilles, *Tectonophysics*, 99, 139-148, 1983.
- Stein, S., J. F. Engeln, C. DeMets, R. G. Gordon, D. Woods, P. Lundgren, D. Argus, C. Stein, and D. A. Wiens, The Nazca-South America convergence rate and the recurrence of the great 1960 Chilean earthquake, *Geophys. Res. Lett.*, 13, 713-716, 1986.
- Stein, S., D. A. Wiens, and J. F. Engeln, Comment on "Subduction of aseismic ridges beneath the Caribbean plate: implications of the tectonics and seismic potential of the northeastern Caribbean" by W. R. McCann and L. R. Sykes, *J. Geophys. Res.*, 91, 784-786, 1986.
- Stephen, R. A., Travel-time curves for a simple sea floor model, *Mar. Geophys. Res.*, 5, 315-326, 1982.
- Stephen, R. A., A comparison of finite difference and reflectivity seismograms for laterally homogeneous marine models, *Geophys. J. R. Astron. Soc.*, 72, 39-57, 1983.
- Stephen, R. A., The oblique seismic experiment on DSDP Leg 70, *Initial Reports of the Deep Sea Drilling Project*, 69, 301-308, 1983.
- Stephen, R. A., Borehole seismic experiments and the structure of oceanic crust, in *Vertical Seismic Profiling, Part B: Advanced Concepts*, edited by M. N. Toksoz and R. R. Stewart, pp. 63-79, Geophysical Press, Amsterdam, 1984.
- Stephen, R. A., Finite difference seismograms for laterally varying marine models, *Geophys. J. R. Astron. Soc.*, 79, 184-198, 1984.
- Stephen, R. A., Seismic anisotropy in the upper oceanic crust, *J. Geophys. Res.*, 90, 11383-11396, 1985.
- Stephen, R. A., Seismic anisotropy in the upper crust at DSDP Site 504B, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 599-607, Plenum Press, NY, 1986.
- Stephen, R. A., and S. T. Bolmer, The direct wave root in marine seismology, *Bull. Seismol. Soc. Am.*, 75, 57-67, 1985.
- Stephen, R. A., and A. J. Harding, Travel time analysis of borehole seismic data, *J. Geophys. Res.*, 88, 8289-8298, 1983.
- Stephen, R. A., S. Johnson, and B. T. R. Lewis, The oblique seismic experiment on DSDP Leg 65, *Initial Reports of the Deep Sea Drilling Project*, 65, 319-326, 1983.
- Stephens, C. D., K. A. Fogelman, J. C. Lahr, and R. A. Page, Wrangell Benioff zone, southern Alaska, *Geology*, 12, 373-376, 1984.
- Stevens, J. L., Analysis of explosion-generated Rayleigh and Love waves from the East Kazakh, Amchitka and Nevada test sites, Final Report to Air Force Geophysics Lab., AFGL-TR-86-0043(I), S-Cubed, La Jolla, CA, 1986.
- Stevens, J. L., Estimation of scalar moments from explosion-generated surface waves, *Bull. Seismol. Soc. Am.*, 76, 123-151, 1986.
- Stevens, J. L., Reply to Z. Der's "Comments on the paper 'Estimation of scalar moments from explosion-generated surface waves,'" *Bull. Seismol. Soc. Am.*, 76, 1825-1829, 1986.
- Stevens, J. L., and S. M. Day, The physical basis of $m_b:M_s$ and variable frequency magnitude methods for earthquake/explosion discrimination, *J. Geophys. Res.*, 90, 3009-3020, 1985.
- Stewart, D. B., J. D. Unger, J. D. Phillips, R. Goldsmith, W. H. Poole, C. P. Spencer, A. G. Green, M. C. Loiselle, and P. St.-Julien, The Quebec-western Maine seismic reflection profile: setting and first year results, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 189-199, AGU Geodynamic Series, Washington, DC, 1986.
- Stewart, J. H., Extensional tectonics in the Death Valley area, California: transport of the Panamint range structural block 80 km northwestward, *Geology*, 11, 153-157, 1983.
- Stewart, L. M., and E. A. Okal, Seismicity and aseismic slip along the Eltanin fracture zone, *J. Geophys. Res.*, 88, 10495-10507, 1983.
- Stewart, R. R., M. N. Toksoz, and A. Timur, Strain dependent attenuation: observations and a proposed mechanism, *J. Geophys. Res.*, 88, 546-554, 1983.
- Stierman, D. J., Geophysical and geological evidence for fracturing, water circulation and chemical alteration in granitic rocks adjacent to major strike-slip faults, *J. Geophys. Res.*, 89, 5849-5857, 1984.
- Stoffa, P. L., Analysis and processing of wide-angle reflection and refraction seismic data in the $\tau-\rho$ domain, *Advances in Geophysical Data Processing*, 2, 81-117, 1985.
- Stoffa, P. L., P. Buhl, T. J. Herron, T. K. Kan, and W. J. Ludwig, Mantle reflections beneath the crustal zone of the east Pacific rise from multi-channel seismic data, *Mar. Geol.*, 95, 83-97, 1980.
- Stoffa, P. L., P. Buhl, and J. B. Diebold, The seismic reflection/refraction method: wide

- aperture data obtained in multiship experiments, in *Structure and Development of the Greenland-Scotland Ridge—New Methods and Concepts, NATO Conference Series IV*, edited by M. H. P. Bott et al., Marine Sciences, Plenum Press, NY, 1983.
- Stoll, R. D., Acoustic waves in marine sediments, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. Berkson, pp. 417-434, Plenum Press, NY, 1986.
- Stolte, C., K. C. McNally, J. González-Ruis, G. W. Simila, A. Reyes, C. Rebollar, L. Munguía, and L. Mendoza, Fine structure of a post-failure Wadati-Benioff zone, *Geophys. Res. Lett.*, 13, 577-580, 1986.
- Stork, C., and D. V. Helmberger, A new velocity profile for the Eurasian shield, *Eos (Trans. Amer. Geophys. Un.)*, 66, 310, 1985.
- Stover, C. W., Intensity distribution and isoseismal map, in *The 1983 Coalinga, California Earthquakes*, edited by J. H. Bennett and R. W. Sherburne, pp. 1-4, Special Publ. 66, Calif. Div. Mines and Geol., Sacramento, CA, 1983.
- Stover, C. W., Intensity distribution and isoseismal map for the Morgan Hill, California, earthquake of April 24, 1984, in *The 1984 Morgan Hill, California Earthquake*, edited by J. H. Bennett and R. W. Sherburne, pp. 1-4, Special Publ. 68, Calif. Div. Mines and Geol., Sacramento, CA, 1984.
- Stover, C. W., (ed.) *United States Earthquakes, 1981*, U.S. Geol. Surv. Special Pub., 136 pp., 1984.
- Stover, C. W., The Borah Peak, Idaho earthquake of October 28, 1983—isoseismal map and intensity distribution, *Earthquake Spectra*, 2, 11-16, 1985.
- Stover, C. W., United States earthquakes, 1982, *U.S. Geol. Surv. Bull.* 1655, 141 pp., 1985.
- Stover, C. W., and C. A. von Hake, (ed.) *United States Earthquakes, 1980*, U.S. Geol. Surv. and Nat. Oceanic and Atmos. Admin., 182 pp., 1982.
- Street, R., Some recent *Lg* phase displacement spectral densities and their implications with respect to the prediction of ground motions in eastern North America, *Bull. Seismol. Soc. Am.*, 74, 757-762, 1984.
- Street, R., A. Zekulin, M. Allsop, and D. Couch, The spatial correlation between a lateral seismic velocity discontinuity in the preCambrain basement rock and the Sharpsburg, Kentucky earthquake of July 27, 1980, *Earthquake Notes*, 56, 47-54, 1985.
- Strehlau, J., A discussion of the depth extent of rupture in large continental earthquakes, in *Earthquake Source Mechanics, Maurice Ewing Ser.*, vol. 6, edited by S. Das et al., pp. 131-145, AGU, Washington, DC, 1986.
- Stuart, W. D., Instability model for recurring large and great earthquakes in southern California, *Pageoph.*, 122, 793-811, 1984/85.
- Stuart, W. D., Forecast model for large and great earthquakes in southern California, *J. Geophys. Res.*, 91, 13771-13786, 1986.
- Stuart, W. D., R. J. Archuleta, and A. G. Lindh, Forecast model for moderate earthquakes near Parkfield, California, *J. Geophys. Res.*, 90, 592-604, 1985.
- Stuiver, M., and G. W. Pearson, High-precision calibration of the radiocarbon time scale, AD1950-500BC, *Radiocarbon*, 28, 805-838, 1986.
- Stump, B. W., Source characterization of bermmed surface bursts, *Bull. Seismol. Soc. Am.*, 73, 979-1003, 1983.
- Stump, B. W., Constraints on explosive sources with Spall from near-source waveforms, *Bull. Seismol. Soc. Am.*, 75, 361-377, 1985.
- Stump, B. W., and L. R. Johnson, Near-field source characterization of contained nuclear explosions in tuff, *Bull. Seismol. Soc. Am.*, 74, 1-26, 1984.
- Stump, B. W., and R. E. Reinke, Spall observations and mechanisms in alluvium, *J. Geophys. Res.*, 89, 11495-11506, 1984.
- Suarez, G., P. Molnar, and B. C. Burchfiel, Seismicity, fault plane solutions, depth of faulting, and active tectonics of the Andes of Peru, Ecuador, and southern Colombia, *J. Geophys. Res.*, 88, 10403-10428, 1983.
- Sullivan, J. T., and A. R. Nelson, Late Cenozoic faulting in Heeber and Keetley Valleys, northeastern Utah, *Spec. Stud. Utah Geol. Mineral Surv.*, 62, 55-61, 1983.
- Sutton, G. H., Ocean bottom seismology: history and current status, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 821-840, Plenum Press, NY, 1986.
- Sutton, G. H., F. K. Duennebier, and G. J. Fryer, Comment on 'The recovery of true particle motion from three-component ocean bottom seismometer data' by J. D. Garmany, *J. Geophys. Res.*, 90, 11567-11568, 1985.
- Suyehiro, K., and I. S. Sacks, An anomalous low velocity region above the deep earthquakes in the Japan subduction zone, *J. Geophys. Res.*, 88, 10429-10438, 1985.
- Suzuki, S., and A. S. Kiremidjian, Site hazard analysis methods with empirical and geophysical ground motion models, *Rep. 80*, 81 pp., John A. Blume Earthquake Engin.

- Cen., Dept. Civil Engin., Stanford Univ., Stanford, CA, 1986.
- Sverdrup, K. A., Multiple-event relocation of earthquakes on and near the Gorda ridge, *Geophys. Res. Lett.*, 13, 674-677, 1986.
- Sverdrup, K. A., K. C. Macdonald, and W. A. Prothero, Ocean bottom seismometer detection of earthquakes on the Gorda rise near 41.5°N, *Mar. Geophys. Res.*, 7, 439-453, 1985.
- Swanson, D. A., T. J. Casadevall, D. Dzurisin, S. D. Malone, C. G. Newhall, and C. S. Weaver, Predicting eruptions at Mount St. Helens: June 1980 through December 1982, *Science*, 221, 1369-1376, 1983.
- Sykes, L. R., Predicting great earthquakes, in *Earthquakes: Observation, Theory, and Interpretation*, Proc. Intnatl. School Phys. LXXXV, edited by H. Kanamori and E. Boschi, pp. 398-435, North-Holland, Amsterdam, NY, 1983.
- Sykes, L. R., Verification of nuclear test ban treaties, Testimony before Subcommittee on Arms Control, International Security and Science, Committee on Foreign Affairs, House of Representatives, *Congressional Record*, May 8, 1985.
- Sykes, L. R., Seismic monitoring for a nuclear test ban, *Modern Geol.*, 10, 293-295, 1986.
- Sykes, L. R., Verification of a comprehensive nuclear test ban treaty, Soviet compliance with the Threshold Test Ban Treaty, and the sizes of Soviet strategic nuclear weapons, Testimony before Special Panel on Arms Control and Disarmament, Committee on Armed Services, House of Representatives, *Congressional Record*, Nov. 20, 1985; also reprinted in *Modern Geol.*, 10, 303-321, 1986.
- Sykes, L. R., and I. L. Cifuentes, Yields of Soviet underground nuclear explosions from seismic surface waves: compliance with the Threshold Test Ban Treaty, *Proc. Nat. Acad. Sci., USA*, 81, 1922-1925, 1984.
- Sykes, L. R., and D. M. Davis, The yields of Soviet strategic weapons, *Sci. Am.*, 256, 29-37, 1987.
- Sykes, L. R., and J. F. Evernden, The verification of a Comprehensive Nuclear Test Ban, *Sci. Am.*, 247, 47-55, 1982.
- Sykes, L. R., and S. P. Nishenko, Probabilities of occurrence of large plate rupturing earthquakes for the San Andreas, San Jacinto, and Imperial faults, California, 1983-2003, *J. Geophys. Res.*, 89, 5905-5927, 1984.
- Sykes, L. R., and S. Ruggi, Soviet underground nuclear testing: inferences from seismic observations and historical perspective, *National Resources Defense Council, Working Papers, NWD 86-4*, 91 pp., Washington, DC, Nov. 1986.
- Sykes, L. R., and L. Seeber, Great earthquakes and great asperities, San Andreas fault, southern California, *Geology*, 13, 835-838, 1985.
- Sykes, L. R., and G. C. Wiggins, Yields of Soviet underground nuclear explosions at Novaya Zemlya, 1964-1976, from seismic body and surface waves, *Proc. Nat. Acad. Sci. USA*, 83, 201-205, 1986.
- Sykes, L. R., J. F. Evernden, I. Cifuentes, Seismic methods for verifying nuclear test bans, *Physics, Technology and the Nuclear Arms Race*, edited by D. W. Hafemeiser and D. Schroeer, Am. Inst. of Phys., 85-133, 1983.
- Taber, J. J., Jr., Crustal structure and seismicity of the Washington continental margin, Ph.D. thesis, 159 pp., Univ. of Wash., Seattle, WA, 1983.
- Taber, J. J., and K. W. Hudnut, A transition from a single to a double Benioff zone near the Shumagin Islands, Alaska, *Eos (Trans. Amer. Geophys. Un.)*, 66, 958, 1985.
- Taber, J. J., and S. W. Smith, Seismicity and focal mechanisms associated with the subduction of the Juan de Fuca plate beneath the Olympic peninsula, Washington, *Bull. Seismol. Soc. Am.*, 75, 237-250, 1985.
- Tabor, J. J., and J. Beavan, February 14, 1983 earthquake sequence in the Shumagin Islands, Alaska, *Bull. Seismol. Soc. Am.*, 76, 1588-1596, 1986.
- Tajima, F., Study of the source processes of the 1965, 1968, and 1978 Oaxaca earthquakes using short-period records, *J. Geophys. Res.*, 89, 1867-1873, 1984.
- Tajima, F., and J. D. Garmany, Surface wave amplitude asymmetries: is reciprocity valid?, *Phys. Earth Planet. Inter.*, in press, 1986.
- Tajima, F., and H. Kanamori, Aftershock area expansion and mechanical heterogeneity of fault zone within subduction zones, *Geophys. Res. Lett.*, 12, 345-348, 1985.
- Tajima, F., and K. C. McNally, Seismic rupture patterns in Oaxaca, Mexico, *J. Geophys. Res.*, 88, 4263-4275, 1983.
- Talandier, J., and E. A. Okal, New surveys of Macdonald seamount, southcentral Pacific, following volcanoseismic activity, 1977-1983, *Geophys. Res. Lett.*, 11, 813-816, 1984.
- Talandier, J., and E. A. Okal, The volcanoseismic swarms of 1981-1983 in the Tahiti-Mehetia area, French Polynesia, *J. Geophys. Res.*, 89, 11216-11234, 1984.

- Talwani, P., and S. Acree, Pore pressure diffusion and the mechanism of reservoir-induced seismicity, *Pageoph*, **122**, 947-965, 1984/85.
- Talwani, P., and J. Cox, Paleoseismic evidence for recurrence of earthquakes near Charleston, South Carolina, *Science*, **228**, 379-381, 1985.
- Talwani, M., J. C. Mutter, and K. Hinz, Ocean continent boundary under the Norwegian continental margin, in *Structure and Development of the Scotland-Greenland Ridge: New Methods and Concepts*, edited by M. H. P. Bott et al., pp. 121-132, Plenum Press, NY, 1983.
- Tanimoto, T., A simple derivation of the formula to calculate synthetic long-period seismograms in a heterogeneous earth by normal mode summation, *Geophys. J. R. Astron. Soc.*, **77**, 275-278, 1984.
- Tanimoto, T., Waveform inversion of mantle Love waves: the Born seismogram approach, *Geophys. J. R. Astron. Soc.*, **78**, 641-660, 1984.
- Tanimoto, T., The Backus-Gilbert approach to the three-dimensional structure in the upper mantle, I. Lateral variation of surface wave phase velocity with its error and resolution, *Geophys. J. R. Astron. Soc.*, **82**, 105-124, 1985.
- Tanimoto, T., Free oscillations in a slightly anisotropic earth, *Geophys. J. R. Astron. Soc.*, **87**, 493-517, 1986.
- Tanimoto, T., The Backus-Gilbert approach to the three-dimensional structure in the upper mantle, II. SH and SV velocity, *Geophys. J. R. Astron. Soc.*, **84**, 49-70, 1986.
- Tanimoto, T., and D. L. Anderson, Mapping convection in the mantle, *Geophys. Res. Lett.*, **11**, 287-290, 1984.
- Tanimoto, T., and D. L. Anderson, Lateral heterogeneity and azimuthal anisotropy of the upper mantle: Love and Rayleigh waves 100-250 s, *J. Geophys. Res.*, **90**, 1842-1858, 1985.
- Tanimoto, T., and B. A. Bolt, Coupling of torsional modes in the earth, *Geophys. J. R. Astron. Soc.*, **74**, 83-96, 1983.
- Tanimoto, T., and H. Kanamori, Linear programming approach to moment tensor inversion of earthquake sources and some tests on the three dimensional structure of the upper mantle, *Geophys. J. R. Astron. Soc.*, **84**, 413-430, 1986.
- Tappert, F. D., and L. Nghiem-Phu, Modeling of pulse response functions of bottom interacting sound using the parabolic equation method, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 129-137, Plenum Press, NY, 1986.
- Tarr, A. C., and S. Rhea, Seismicity near Charleston, South Carolina, March 1973 to December 1979, in *Studies Related to the Charleston, South Carolina, Earthquake of 1886—Tectonics and seismicity*, edited by G. S. Gohn, pp. R1-R17, U.S. Geol. Surv. Prof. Pap., **1313**, 1983.
- Taylor, F. W., C. Jouannic, and A. L. Bloom, Quaternary uplift of the Torres Islands, northern New Hebrides frontal arc: comparison with Santo and Malekula Islands, central New Hebrides, *J. Geol.*, **93**, 419-438, 1985.
- Taylor, F. W., P. Mann, S. Valastro, Jr., and K. Burke, Stratigraphy and radiocarbon chronology of a subaerially exposed Holocene coral reef, Dominican Republic, *J. Geol.*, **93**, 311-332, 1985.
- Taylor, H. P., Oxygen and hydrogen isotope studies of hydrothermal interactions at submarine and subaerial spreading centers, in *Hydrothermal Processes at Seafloor Spreading Centers, NATO Conference Series IV, Marine Sciences*, vol. 12, edited by P. A. Rona et al., pp. 83-140, Plenum Press, NY, 1983.
- Taylor, S. R., Three-dimensional crust and upper mantle structure at the Nevada test site, *J. Geophys. Res.*, **88**, 2220-2232, 1983.
- Taylor, S. R., and T. J. Owens, Frequency-domain inversion of receiver functions for crustal structure, *Earthquake Notes*, **55**, 5-12, 1985.
- Taylor, S. R., and H. J. Patton, Shear-velocity structure from regionalized surface-wave dispersion in the Basin and Range, *Geophys. Res. Lett.*, **13**, 30-33, 1986.
- Taylor, S. R., and B. J. Qualheim, Regional seismic test network site descriptions, Lawrence Livermore Nat'l Lab., UCID-19769, 79 pp., Livermore, CA, 1983.
- Taylor, S. R., B. P. Bonner, and G. Ramit, Attenuation and scattering of broadband P and S waves across North America, *J. Geophys. Res.*, **91**, 7309-7325, 1986.
- Taylor, S. R., B. P. Bonner, and G. Zandt, Attenuation and scattering of broadband P and S waves across North America, *J. Geophys. Res.*, **91**, 7309-7325, 1986.
- Taylor, S. R., M. D. Denny, and E. S. Vergino, Regional $m_b:M_s$ discrimination of NTS explosions and western United States earthquakes: a progress report, Lawrence Livermore Nat'l Lab., UCID-20642, 35 pp., Livermore, CA, 1986.

- Teague, A. G., G. A. Bollinger, and A. C. Johnston, Focal mechanism analyses for eastern Tennessee earthquakes (1981–1983), *Bull. Seismol. Soc. Am.*, **76**, 95–110, 1986.
- ten Brink, U. S., and A. B. Watts, Seismic stratigraphy of the flexural moat flanking the Hawaiian Islands, *Nature*, **317**, 421–424, 1985.
- Teng, T.-L., and Sun, L.-F., Research on groundwater radon as a fluid phase precursor to earthquakes, *J. Geophys. Res.*, **91**, 12305–12313, 1986.
- Thatcher, W., Seismic triggering and earthquake prediction, *Nature*, **299**, 12–13, 1982.
- Thatcher, W., Nonlinear strain buildup and the earthquake cycle on the San Andreas fault, *J. Geophys. Res.*, **88**, 5893–5902, 1983.
- Thatcher, W., The earthquake deformation cycle at the Nankai trough, southwest Japan, *J. Geophys. Res.*, **89**, 3087–3101, 1984.
- Thatcher, W., The earthquake deformation cycle, recurrence, and the time-predictable model, *J. Geophys. Res.*, **89**, 5674–5680, 1984.
- Thatcher, W., and J. R. Rundle, A viscoelastic coupling model for the cyclic deformation due to periodically repeated earthquakes at subduction zones, *J. Geophys. Res.*, **89**, 7631–7640, 1984.
- Thomas, D. M., K. E. Cuff, and M. E. Cox, The association between ground gas radon variations and geologic activity in Hawaii, *J. Geophys. Res.*, **91**, 12186–12198, 1986.
- Thompson, G. A., and J. L. Hill, The deep crust in convergent and divergent terranes: laramide uplifts and Basin-Range rifts, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 243–256, AGU Geodynamic Series, Washington, DC, 1986.
- Thompson, G., W. Mooney, K. Priestley, and R. Smith, Nevada Basin-Range lithospheric seismic imaging experiment: PASSCAL, 1986 (abs.), *Eos (Trans. Amer. Geophys. Un.)*, **67**, 1096, 1986.
- Thorson, R. M., W. S. Clayton, and L. Seeber, Geologic evidence for a large pre-historic earthquake in eastern Connecticut, *Geology*, **14**, 463–467, 1986.
- Thurber, C. H., Earthquake locations and three-dimensional crustal structure in the Coyote Lake area, central California, *J. Geophys. Res.*, **88**, 8226–8236, 1983.
- Thurber, C. H., Analysis methods for kinematic data from local earthquakes, *Rev. Geophys.*, **24**, 793–805, 1986.
- Thurber, C. H., Seismic structure and tectonics of Kilauea volcano, in *Volcanism in Hawaii*, edited by R. W. Decker et al., pp. 919–934, *U.S. Geol. Surv. Prof. Pap.*, **1350**, 2, 1987.
- Thurber, C. H., and K. Aki, Three-dimensional seismic imaging, *Ann. Rev. Earth Planet. Sci.*, **15**, *in press*, 1986.
- Thurber, C. H., and M. M. Bell, Joint inversion for *P* to *S* seismic velocity ratio: application to the Sharpsburg, Kentucky aftershock sequence, *Earthquake Notes*, **55**, 13–15, 1984.
- Tilford, N. R., U. Chandra, D. C. Amick, R. Moran, and F. Snider, Attenuation of intensities and effect of local site conditions on observed intensities during the Corinth, Greece, earthquakes of 24 and 25 February and 4 March, 1981, *Bull. Seismol. Soc. Am.*, **75**, 923–927, 1985.
- Tinsley, J. C., and T. E. Fumal, Mapping Quaternary sedimentary deposits for areal variations in shaking response, in *Evaluating Earthquake Hazards in the Los Angeles Region—An Earth-Science Perspective*, edited by J. I. Zony, pp. 101–125, *U.S. Geol. Surv. Prof. Pap.* **1360**, 1985.
- Toomey, D. R., S. C. Solomon, G. M. Purdy, and M. H. Murray, Microearthquakes beneath the median valley of the mid-Atlantic ridge near 23°N: hypocenters and focal mechanisms, *J. Geophys. Res.*, **90**, 5443–5458, 1985.
- Toppozada, T. R., History of earthquake damage in Santa Clara County and comparison of 1911 and 1984 earthquakes, in *The 1984 Morgan Hill, California Earthquake*, edited by J. H. Bennett and R. W. Sherburne, pp. 237–248, *Special Publ.* **68**, Calif. Div. Mines and Geol., Sacramento, CA, 1984.
- Topuz, E., and L. B. Felsen, Sound propagation in a weakly range dependent shallow ocean, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 1–10, Plenum Press, NY, 1986.
- Toth, T., and C. Kisslinger, Revised focal depths and velocity model for local earthquakes in the Adak seismic zone, *Bull. Seismol. Soc. Am.*, **74**, 1349–1360, 1984.
- Tralli, D. M., and L. R. Johnson, Estimation of slowness-dependent source and receiver corrections for *P* wave travel times, *Bull. Seismol. Soc. Am.*, **76**, 1718–1738, 1986.
- Tralli, D. M., and L. R. Johnson, Lateral variations in mantle *P* velocity from tectonically regionalized tau estimates, *Geophys. J. R. Astron. Soc.*, **86**, 475–489, 1986.
- Trehu, A. M., Lateral velocity variations in the Orozco transform fault inferred from observed incident angles and azimuths of *P*-waves,

- Geophys. J. R. Astron. Soc.*, 77, 711-728, 1984.
- Trehu, A. M., and S. C. Solomon, Earthquakes in the Orozco transform zone: seismicity, source mechanisms, and tectonics, *J. Geophys. Res.*, 88, 8203-8225, 1983.
- Trehu, A. M., and G. M. Purdy, Crustal structure in the Orozco transform zone, *J. Geophys. Res.*, 89, 1834-1842, 1984.
- Trehu, A. M., and W. H. Wheeler, Possible evidence for subducted sediments beneath California, *Geology, in press*, 1986.
- Trifunac, M. D., Preliminary empirical model for scaling Fourier amplitude spectra of strong ground acceleration in terms of earthquake magnitude, source-to-station distance and recording site conditions, *Bull. Seismol. Soc. Am.*, 66, 1343-1373, 1976.
- Trifunac, M. D., and J. G. Anderson, Preliminary empirical models for scaling pseudo-relative velocity spectra, appendix A, in *Methods for Prediction of Strong Earthquake Ground Motion, Rep. NUREG/CR-0689*, 565 pp., U.S. Nuclear Regulatory Comm., 1978.
- Trifunac, M. D., and V. W. Lee, Routine processing of strong motion accelerograms, *Rep. EERL 73-03*, 360 pp., Earthquake Engin. Res. Lab., Calif. Inst. Tech., Pasadena, 1973.
- Trifunac, M. D., and V. W. Lee, Frequency dependent attenuation of strong earthquake ground motion, *Rep. 85-02*, 70 pp., Dept. Civil Engin., Univ. So. Calif., Los Angeles, CA, 1985.
- Trifunac, M. D., and V. W. Lee, Preliminary empirical model for scaling Fourier amplitude spectra of strong ground acceleration in terms of earthquake magnitude, source to station distance, site intensity and recording site conditions, *Rep. 85-03*, 86 pp., Dept. Civil Engin., Univ. So. Calif., Los Angeles, CA, 1985.
- Trifunac, M. D., and V. W. Lee, Preliminary empirical model for scaling pseudo relative velocity spectra of strong earthquake acceleration in terms of magnitude, distance, site intensity, and recording site conditions, *Rep. 85-04*, 151 pp., Dept. Civil Engin., Univ. So. Calif., Los Angeles, CA, 1985.
- Trifunac, M. D., D. K. Marcus, and K. Moslem, A note on controlling the optical density on analog film records in strong motion accelerographs, *Soil Dynamics and Earthquake Engin.*, 4, 31-34, 1985.
- Trujillo, D. M., and A. L. Carter, A new approach to the integration of accelerometer data, *Earthquake Engin. and Structural Dynamics*, 10, 529-535, 1982.
- Tsai, C. J., A method to analyze and verify deep crustal reflections offshore Costa Rica, *Geophysics*, 50, 196-206, 1984.
- Tsai, C. J., An analysis leading to the reduction of scattered noise on deep marine seismic records, *Geophysics*, 49, 17-26, 1984.
- Tse, S. T., and J. R. Rice, Crustal earthquake instability in relation to the depth variation of frictional slip properties, *J. Geophys. Res.*, 91, 9452-9472, 1986.
- Tse, S. T., R. Dmowska, and J. R. Rice, Stressing of locked patches along a creeping fault, *Bull. Seismol. Soc. Am.*, 75, 709-736, 1985.
- Tsuboi, S., R. J. Geller, and S. P. Morris, Partial derivatives of the eigenfrequencies of a laterally heterogeneous earth model, *Geophys. Res. Lett.*, 12, 817-820, 1985.
- Tucker, B., Effects of site conditions and topography, in *Strong Ground Motion Simulation and Earthquake Engineering Applications, Publ. 85-02*, edited by R. E. Scholl and J. L. King, pp. 25-1-25-8, Earthquake Engin. Res. Inst., El Cerrito, CA, 1985.
- Tucker, B. E., and J. L. King, Dependence of sediment-filled valley response on input amplitude and valley properties, *Bull. Seismol. Soc. Am.*, 74, 153-165, 1984.
- Tucker, B. E., J. L. King, D. Hatzfeld, and I. L. Nersesov, Observations of hard-rock site effects, *Bull. Seismol. Soc. Am.*, 74, 121-136, 1984.
- Tunnel, T. W., and G. J. Tango, Predicted partitioning of VLF acoustic energy in a range-dependent environment, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 191-197, Plenum Press, NY, 1986.
- Turcotte, D. L., Fractals and fragmentation, *J. Geophys. Res.*, 91, 1921-1926, 1986.
- Turcotte, D. L., and L. H. Kellogg, Isotopic modeling of the evolution of the mantle and crust, *Rev. Geophys.*, 24, 311-328, 1986.
- Turner, E., and K. H. Stokoe, II, Static and dynamic properties of clayey soils subjected to 1979 Imperial Valley earthquake, *Rep. GR82-26*, 208 pp., Geotech. Eng. Cen., Civil Engin. Dept., Univ. Texas, Austin, TX, 1982.
- Uhrhammer, R. A., The May 2, 1983 Coalinga earthquake and seismicity rates and strain energy in the central Coast ranges, California, in *Proc. of Workshop XXVII, Mechanics of the May 2, 1983 Coalinga Earthquake*, edited by M. J. Rymer and W. L. Ellsworth,

- pp. 61-82, *U.S. Geol. Surv. Open-File Rep. 85-44*, 1985.
- Uhrhammer, R. A., and R. B. Darragh, The 1984 Halls Valley ("Morgan Hill") earthquake sequence: April 24 through June 30, in *The 1984 Morgan Hill, California Earthquake*, edited by J. H. Bennett and R. W. Sherburne, pp. 191-208, *Special Publ. 68*, Calif. Div. Mines and Geol., Sacramento, CA, 1984.
- Uhrhammer, R. A., R. B. Darragh, and B. A. Bolt, The 1983 Coalinga earthquake sequence: May 2 through August 1, in *The 1983 Coalinga, California Earthquakes*, edited by J. H. Bennett and R. W. Sherburne, pp. 221-231, *Special Publ. 66*, Calif. Div. Mines and Geol., Sacramento, CA, 1983.
- U.S. Department of State, Verifying nuclear testing limitations: possible U.S.-Soviet co-operation, *Bureau of Public Affairs, Special Report 152*, 7 pp., August 14, 1986.
- U.S. Geodynamics Committee, The lithosphere, report, Geophysics Research Board, National Academy Press, Washington, DC, 1983.
- Valdes, C. M., W. D. Mooney, S. K. Singh, R. P. Meyer, C. Lomnitz, J. H. Luetgert, C. E. Helsey, B. T. R. Lewis, and M. Mena, Crustal structure of Oaxaca, Mexico, from seismic refraction measurements, *Bull. Seismol. Soc. Am.*, **76**, 547-563, 1986.
- Vanmarcke, E. H., and R. S. Harichandran, Models of the spatial variation of ground motion for seismic analysis of structures, in *Proc. of 8th World Conf. on Earthquake Engin.*, vol. 2, pp. 597-604, San Francisco, CA, 1984.
- Van Schmus, W. R., and W. J. Hinze, The midcontinent rift system, *Ann. Rev. Earth Planet. Sci.*, **13**, 345-383, 1985.
- Vassiliou, M. S., The state of stress in subducting slabs as revealed by earthquakes analyzed by moment tensor inversion, *Earth Planet. Sci. Lett.*, **69**, 195-202, 1984.
- Vassiliou, M. S., B. H. Hager, and A. Raefsky, The distribution of earthquakes with depth and stress in subducting slabs, *J. Geodyn.*, **1**, 11-28, 1984.
- Vaughan, P., and T. Rockwell, Alluvial stratigraphy and neotectonics of the Elsinore fault zone at Agua Tibia Mountain, southern California, in *Neotectonics and Faulting in Southern California*, compiled by P. L. Ehlig, pp. 177-191, *Cordilleran Section, Geol. Soc. Am. Guidebook and Volume*, 1986.
- Vetter, U. R., and A. S. Ryall, Systematic change of focal mechanism with depth in the western Great basin, *J. Geophys. Res.*, **88**, 8237-8250, 1983.
- Vidale, J., and H. Kanamori, The October 1980 earthquake sequence near the New Hebrides, *Geophys. Res. Lett.*, **10**, 1137-1140, 1983.
- Vidale, J., D. V. Helmberger, and R. W. Clayton, Finite-difference seismograms for SH waves, *Bull. Seismol. Soc. Am.*, **75**, 1765-1782, 1985.
- Vidale, J. E., Complex polarization analysis of particle motion, *Bull. Seismol. Soc. Am.*, **76**, 1393-1405, 1986.
- Vidmar, P. J., and R. A. Koch, Shear wave effects on propagation to a receiver in the substrate, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 149-157, Plenum Press, NY, 1986.
- Vincent, K. R., Measurement of vertical tectonic offset using longitudinal profiles of faulted geomorphic surfaces near Borah Peak, Idaho: a preliminary report, in *Proc. of Workshop XXVIII, On the Borah Peak, Idaho, Earthquake*, edited by R. S. Stein and R. C. Bucknam, pp. 76-96, *U.S. Geol. Surv. Open-File Rep. 85-290*, 1985.
- Viret, M., G. A. Bollinger, J. A. Snee, and J. W. Dewey, Joint hypocenter relocation studies with sparse data sets—a case history: Virginia earthquakes, *Bull. Seismol. Soc. Am.*, **74**, 2297-2312, 1984.
- Von Huene, R., L. D. Kulm, and J. Miller, Structure of the frontal part of the Andean convergent margin, *J. Geophys. Res.*, **90**, 5429-5442, 1985.
- Von Tish, D. B., R. W. Allmendinger, and J. W. Sharp, History of Cenozoic extension in Sevier desert, west-central Utah, from COCORP seismic reflection data, *Bull. Am. Assn. Petrol. Geologists*, **69**, 1077-1087, 1985.
- Wagstaff, M., and C. A. Powell, Three-dimensional structure of the lithosphere under the Hanford array, central Washington (abs.), *Eos (Trans. Amer. Geophys. Un.)*, **66**, 302, 1985.
- Walck, M. C., The P-wave upper mantle structure beneath an active spreading centre: the Gulf of California, *Geophys. J. R. Astron. Soc.*, **76**, 697-723, 1984.
- Walck, M. C., The upper mantle beneath the north-east Pacific rim: a comparison with the Gulf of California, *Geophys. J. R. Astron. Soc.*, **81**, 243-276, 1985.
- Walck, M. C., and R. W. Clayton, Analysis of upper mantle structure using wave field continuation of P waves, *Bull. Seismol. Soc. Am.*, **74**, 1703-1719, 1984.
- Walck, M. C., and R. W. Clayton, Tomographic inversion for seismic structure of the Coso region, California (abs.), *Eos (Trans. Amer. Geophys. Un.)*, **66**, 309, 1985.

- Wales, S. C., A vector parabolic equation model for elastic propagation, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 57-66, Plenum Press, NY, 1986.
- Walker, D., High-frequency P_N, S_N velocities: some comparisons for the western, central, and south Pacific, *Geophys. Res. Lett.*, 8, 207-209, 1981.
- Walker, D., Oceanic P_N/SN phases: a qualitative explanation and reinterpretation of the T -phase, *Rep. HIG-82-6*, 19 pp., Hawaii Inst. Geophys., Honolulu, 1982.
- Walker, D., Deep ocean seismology, *Eos (Trans. Amer. Geophys. Un.)*, 65, 2-3, 1984.
- Walker, D. A., and C. S. McCreery, Spectral characteristics of high-frequency P_N, S_N phases in the western Pacific, *J. Geophys. Res.*, 88, 4289-4298, 1983.
- Walker, D. A., and C. S. McCreery, Significant unreported earthquakes in aseismic regions of the western Pacific, *Geophys. Res. Lett.*, 12, 433-436, 1985.
- Walker, D., C. McCreery, and G. Sutton, Spectral characteristics of high frequency P_N, S_N phases in the western Pacific, *J. Geophys. Res.*, 88, 4289-4298, 1983.
- Wallace, R. E., Fault scarps formed during the earthquakes of October 2, 1915, Pleasant Valley, Nevada, and some tectonic implications, *U.S. Geol. Surv. Prof. Pap.*, 1274-A, A1-A33, 1984.
- Wallace, R. E., Patterns and timing of late Quaternary faulting in the Great basin province and relation to some regional tectonic features, *J. Geophys. Res.*, 89, 5763-5769, 1984.
- Wallace, R. E., Variations in slip rate, migration, and grouping of slip events on faults in the Great basin province, in *Proc. of Workshop XXVIII, On the Borah Peak, Idaho, Earthquake*, vol. A, edited by R. S. Stein and R. C. Bucknam, pp. 17-26, *U.S. Geol. Surv. Open-File Rep.* 85-290, 1985.
- Wallace, R. E., and H. T. Morris, Characteristics of faults and shear zones in deep mines, *Pure Appl. Geophys.*, 124, 107-125, 1986.
- Wallace, R. E., and R. A. Whitney, Late Quaternary history of the Stillwater seismic gap, Nevada, *Bull. Seismol. Soc. Am.*, 74, 301-314, 1984.
- Wallace, R. E., J. F. Davis, and K. C. McNally, Terms for expressing earthquake potential, prediction and probability, *Bull. Seismol. Soc. Am.*, 74, 1819-1825, 1984.
- Wallace, T. C., A reexamination of the moment tensor solutions of the 1980 Mammoth Lakes earthquakes, *J. Geophys. Res.*, 90, 11171-11176, 1985.
- Wallace, T. C., Some useful approximations to generalized ray theory for regional distance seismograms, *Geophys. J. R. Astron. Soc.*, 85, 349-363, 1986.
- Wallace, T., J. Given, and H. Kanamori, A discrepancy between long- and short-period mechanisms of earthquakes near the Long Valley caldera, *Geophys. Res. Lett.*, 9, 1131-1134, 1982.
- Wallace, T. C., D. V. Helmberger, and G. R. Engen, Evidence of tectonic release from underground nuclear explosions in long-period P waves, *Bull. Seismol. Soc. Am.*, 73, 593-613, 1983.
- Wallace, T. C., D. V. Helmberger, and G. R. Engen, Evidence of tectonic release from underground nuclear explosions in long-period S waves, *Bull. Seismol. Soc. Am.*, 75, 157-174, 1985.
- Wallace, T. C., D. V. Helmberger, and T. Lay, Reply to comments by A. Douglas, J. B. Young, and N. S. Lyman and a note on the revised moments for Pahute mesa tectonic release, *Bull. Seismol. Soc. Am.*, 76, 313-318, 1986.
- Walter, A. W., Velocity structure near Coalinga, California, in *Mechanics of the May 2, 1983 Coalinga, California, Earthquake*, edited by M. J. Rymer and W. L. Ellsworth, pp. 10-18, *U.S. Geol. Surv. Open-File Rep.* 85-44, 1984.
- Walter, S. R., Intermediate-focus earthquakes associated with Gorda plate subduction in northern California, *Bull. Seismol. Soc. Am.*, 76, 583-588, 1986.
- Wang, Z., C. K. Shen, X. S. Li, and H. W. Yang, Seismic response analysis of soil deposits by computer on-line testing system—a hybrid system, in *Proc. of 3rd U.S. Nat. Conf. on Earthquake Engin.*, vol. 1, pp. 611-622, Charleston, SC, 1986.
- Ward, S. N., Body wave inversion: moment tensors and depths of oceanic intraplate bending earthquakes, *J. Geophys. Res.*, 88, 9315-9330, 1983.
- Ward, S. N., and S. E. Barrientos, An inversion for slip distribution and fault shape from geodetic observations of the 1983, Borah Peak, Idaho, earthquake, *J. Geophys. Res.*, 91, 4909-4919, 1986.
- Ware, R. H., C. Roecker, and M. Wyss, The detection and interpretation of hydrogen in fault gases, *Pageoph.*, 122, 392-402, 1984/85.
- Warren, D. H., C. Scofield, and C. G. Buse, Aftershocks of the 22 November 1977

- earthquake at Willits, California: activity in the Maacama fault zone, *Bull. Seismol. Soc. Am.*, 75, 507-518, 1985.
- Watts, A. B., U. S. ten Brink, P. Buhl, and T. M. Brocher, A multichannel seismic study of lithospheric flexure across the Hawaiian-Emperor seamount chain, *Nature*, 315, 105-111, 1985.
- Weaver, C. S., and C. A. Michaelson, Seismicity and volcanism in the Pacific northwest: evidence for the segmentation of the Juan de Fuca plate, *Geophys. Res. Lett.*, 12, 215-218, 1985.
- Weaver, C. S., and S. W. Smith, Regional tectonic and earthquake hazard implications of a crustal fault zone in southwestern Washington, *J. Geophys. Res.*, 88, 10371-10383, 1983.
- Weaver, C. S., J. E. Zollweg, and S. D. Malone, Deep earthquakes beneath Mount St. Helens: evidence for magmatic transport?, *Science*, 221, 1391-1394, 1983.
- Webb, S. C., Observations of seafloor pressure and electric field fluctuations, Ph.D. thesis, 189 pp., Univ. of Calif., San Diego, CA, 1984.
- Webb, S., and C. S. Cox, Pressure and electrical fluctuations on the deep seafloor: background noise for seismic detection, *Geophys. Res. Lett.*, 11, 967-970, 1984.
- Webb, S. C., and C. S. Cox, Observations and modelling of seafloor microseisms, *J. Geophys. Res.*, 91, 7343-7358, 1986.
- Webb, T. H., and H. Kanamori, Earthquake focal mechanisms in the eastern Transverse ranges and San Emigdio Mountains, southern California and evidence for a regional decollement, *Bull. Seismol. Soc. Am.*, 75, 737-757, 1985.
- Weldon, R., and E. Humphreys, A kinematic model of southern California, *Tectonics*, 5, 33-48, 1986.
- Weldon, R. J., and K. E. Sieh, Holocene rate of slip and tentative recurrence interval for large earthquakes on the San Andreas fault, Cajon pass, southern California, *Geol. Soc. Am. Bull.*, 96, 793-812, 1985.
- Wen, J., and G. A. McMechan, Application of two-dimensional synthetic seismogram modeling to interpretation of wide-angle seismic data from Wind River, Wyoming, *J. Geophys. Res.*, 90, 3617-3625, 1985.
- Wentworth, C. M., and M. Mergner-Keefer, Regenerate faults of small Cenozoic offset—probable earthquake sources in the southeastern United States, in *Studies Related to the Charleston, South Carolina, Earthquake of 1886—Tectonics and Seismicity*, edited by G. S. Gohn, pp. S1-S20, *U.S. Geol. Surv. Prof. Pap.*, 1913, 1983.
- Wentworth, C. M., M. C. Blake, D. C. Jones, A. W. Walter, and M. D. Zoback, Tectonic wedging associated with emplacement of the Franciscan assemblage, California Coast ranges, *Soc. Econ. Paleontol. and Mineral., Pacific Section*, 43, 163-173, 1984.
- Wenzel, F., P. L. Stoffa, and P. Buhl, Seismic modeling in the domain of intercept time and ray parameter, *IEEE Trans. Acoustics, Speech and Signal Processing*, ASSP-30, 406-423, 1982.
- Werby, M. F., and G. J. Tango, Characterization of average geoacoustic bottom properties from expected propagation behavior at very low frequencies (VLF) using a towed array simulation, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 881-889, Plenum Press, NY, 1986.
- Werner, S. D., and J. L. Beck, Effects of recorder nonsynchronization on interpretation of strong motion records at the Meloland Road overpass, in *Proc. of 3rd U.S. Nat. Conf. on Earthquake Engin.*, vol. 1, pp. 393-404, Charleston, SC, 1986.
- Wesnousky, S. G., Earthquakes, Quaternary faults, and seismic hazard in California, *J. Geophys. Res.*, 91, 12587-12632, 1986.
- Wesnousky, S. G., C. H. Scholz, K. Shimazaki, and T. Matsuda, Earthquake frequency distribution and the mechanics of faulting, *J. Geophys. Res.*, 88, 9331-9340, 1983.
- Wesnousky, S. G., L. M. Jones, C. H. Scholz, and Q. Deng, Historical seismicity and rates of crustal deformation along the margins of the Ordos block, northern China, *Bull. Seismol. Soc. Am.*, 74, 1767-1784, 1984.
- Wesnousky, S. G., C. H. Scholz, K. Shimazaki, and T. Matsuda, Integration of geological and seismological data for the analysis of seismic hazard: a case study of Japan, *Bull. Seismol. Soc. Am.*, 74, 687-708, 1984.
- Wesson, R. L., and R. E. Wallace, Predicting the next great earthquake in California, *Scientific American*, 252, 35-43, 1985.
- Wheeler, R. L., and G. A. Bollinger, Seismicity and suspect terranes in the southeastern United States, *Geology*, 12, 323-326, 1984.
- Whitcomb, J. H., and J. B. Rundle, Vertical distortion in Long Valley, California, associated with the January 1983 earthquake swarm, *Geophys. Res. Lett.*, 12, 522-525, 1985.
- White, R. A., The Guatemala earthquake of 1816 on the Chixoy-Polochic fault, *Bull. Seismol. Soc. Am.*, 75, 455-474, 1985.

- White, R. S., Atlantic Ocean crust: seismic structure of a slow spreading ridge, in *Spec. Publ. Geol. Soc. London 13: Ophiolites and Oceanic Lithosphere*, edited by I. G. Gass et al., pp. 101-111, Blackwell Scientific Publications, Oxford, 1984.
- White, R. S., and G. M. Purdy, Lateral and vertical variability in crustal velocity structure in a small area of the North Atlantic, *Tectonophysics*, **90**, 153-166, 1982.
- White, R. S., and G. M. Purdy, Crustal velocity structure on the flanks of the Mid-Atlantic ridge at 24°N, *Geophys. J. R. Astron. Soc.*, **75**, 361-386, 1983.
- White, R. S., R. S. Detrick, M. C. Sinha, and M. H. Cormier, Anomalous seismic crustal structure of oceanic fracture zones, *Geophys. J. R. Astron. Soc.*, **79**, 779-798, 1984.
- Whitman, D., A. W. Walter, and W. D. Mooney, Crustal structure of the Great Valley, California cross profile (abs.), *Eos (Trans. Amer. Geophys. Un.)*, **66**, 973, 1985.
- Whitmarsh, R. B., J. A. Orcutt, T. H. Jordan, R. G. Adair, and P. M. Shearer, Velocity bounds on the seismic structure of Late Jurassic [157 Ma old] crust and upper mantle in the southwest Pacific basin from downhole observations at Deep-Sea Drilling Project Hole 595B, *Initial Reports of the Deep Sea Drilling Project*, in press, 1986.
- Wielandt, E., and L. Knopoff, Dispersion of very long-period Rayleigh waves along the east Pacific rise: evidence for S wave velocity anomalies to 450 km depth, *J. Geophys. Res.*, **87**, 8631-8641, 1982.
- Wiens, D. A., Historical seismicity near Chagos: a complex deformation zone in the equatorial Indian ocean, *Earth Planet. Sci. Lett.*, **76**, 350-360, 1985.
- Wiens, D. A., and S. Stein, Age dependence of oceanic intraplate seismicity and implications for lithospheric evolution, *J. Geophys. Res.*, **88**, 6455-6468, 1983.
- Wiens, D. A., and S. Stein, Intraplate seismicity and stresses in young oceanic lithosphere, *J. Geophys. Res.*, **89**, 11442-11464, 1984.
- Wiens, D. A., and S. Stein, Implications of oceanic intraplate seismicity for plate stresses, driving forces, and rheology, *Tectonophysics*, **116**, 143-162, 1985.
- Wiens, D. A., C. DeMets, R. G. Gordon, S. Stein, D. Argus, J. F. Engelin, P. Lundgren, D. Quible, C. Stein, S. Weinstein, and D. F. Woods, A diffuse plate boundary model for Indian ocean tectonics, *Geophys. Res. Lett.*, **12**, 429-432, 1985.
- Wilson, D. S., A kinematic model for the Gorda deformation zone as a diffuse southern boundary of the Juan de Fuca plate, *J. Geophys. Res.*, **91**, 10259-10270, 1986.
- Wilson, J. C., and P. C. Jennings, Spatial variation of ground motion determined from accelerograms recorded on a highway bridge, *Bull. Seismol. Soc. Am.*, **75**, 1515-1533, 1985.
- Wilson, J. H., Very low frequency (VLF) wind-generated noise produced by turbulent pressure fluctuations in the atmosphere near the ocean surface, *J. Acoust. Soc. Am.*, **66**, 1499-1507, 1979.
- Wilson, R. C., and D. K. Keefer, Dynamic analysis of a slope failure from the 6 August 1979 Coyote Lake, California, earthquake, *Bull. Seismol. Soc. Am.*, **73**, 863-877, 1983.
- Wintle, A. G., and D. J. Huntley, Thermoluminescence dating of sediments, *Quaternary Ser. Rev.*, **1**, 31-53, 1982.
- Wintle, A. G., and J. A. Westgate, Thermoluminescence age of Old Crow tephra in Alaska, *Geology*, **14**, 594-597, 1986.
- Withjack, M. O., and W. R. Jamison, Deformation produced by oblique rifting, *Tectonophysics*, **126**, 99-124, 1984.
- Wollenberg, H. A., A. R. Smith, D. F. Mosier, S. Flexsen, and M. Clark, Radon-222 in ground water of the Long Valley caldera, California, *Pageoph.*, **122**, 327-339, 1984/85.
- Wolters, B., Seismicity and tectonics of southern Central America and adjacent regions with special attention to the surroundings of Panama, *Tectonophysics*, **128**, 21-46, 1986.
- Wong, H. L., Effects of surface topography and site conditions, in *Strong Ground Motion Simulation and Earthquake Engineering Applications*, *Publ. 85-02*, edited by R. E. Scholl and J. L. King, pp. 24-1-24-5, Earthquake Engin. Res. Inst., El Cerrito, CA, 1985.
- Wong, I. G., and R. W. Ely, Historical seismicity and tectonics of the Coast ranges-Sierran block boundary: implications to the 1983 Coalinga earthquakes, in *The 1983 Coalinga, California Earthquakes, Special Publication 66*, edited by J. H. Bennett and R. W. Sherburne, pp. 89-104, Calif. Dept. Conservation, Div. Mines and Geology, 1983.
- Wong, I. G., and W. U. Savage, Deep intraplate seismicity in western Sierra Nevada, central California, *Bull. Seismol. Soc. Am.*, **73**, 797-812, 1983.
- Wong, I. G., D. J. Cash, and L. H. Jaksha, The Crownpoint, New Mexico, earthquakes of 1976 and 1977, *Bull. Seismol. Soc. Am.*, **74**, 2435-2450, 1984.

- Wong, K. C., and M. Wyss, Clustering of foreshocks and preshocks in the circum-Aegean region, *Earthq. Pred. Res.*, 3, 121-140, 1985.
- Wong, T.-F., On the normal stress dependence of the shear fracture energy, in *Earthquake Source Mechanics, Maurice Ewing Ser.*, vol. 6, edited by S. Das et al., pp. 1-11, AGU, Washington, DC, 1986.
- Wong, Y. K., and J. H. Woodhouse, Ray theory for surface waves on a sphere, *Eos (Trans. Amer. Geophys. Un.)*, 64, 260, 1983.
- Wong, Y. K., and J. H. Woodhouse, The mapping of mantle wave phase velocity in the presence of large deviations in ray-path, *Eos (Trans. Amer. Geophys. Un.)*, 67, 307, 1986.
- Wood, D. H., M. D. Duston, and G. R. Verma, Bottom interaction effects on normal modes: an algebraic approach, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 75-85, Plenum Press, NY, 1986.
- Woodhouse, J. H., The joint inversion of seismic waveforms for lateral variations in earth structure and earthquake source parameters, *Proc. of the Enrico Fermi Inter. School of Physics, LXXXV*, edited by H. Kanamori and E. Boschi, pp. 366-397, 1984.
- Woodhouse, J. H., and A. M. Dziewonski, Mapping the upper mantle: three-dimensional modeling of earth structure by inversion of seismic waveforms, *J. Geophys. Res.*, 89, 5953-5986, 1984.
- Woodhouse, J. H., and A. M. Dziewonski, Three-dimensional images of the earth's interior, in *The VELA Program*, edited by A. Kerr, pp. 448-464, 1985.
- Woodhouse, J. H., and A. M. Dziewonski, Three-dimensional mantle models based on mantle wave and long period body wave data, *Eos (Trans. Amer. Geophys. Un.)*, 67, 307, 1986.
- Woodhouse, J. H., and T. P. Girnius, Surface waves and free oscillations in a regionalized earth model, *Geophys. J. R. Astron. Soc.*, 68, 653-673, 1982.
- Woodhouse, J. H., D. Giardini, and X.-D. Li, Evidence for inner core anisotropy from free oscillations, *Geophys. Res. Lett.*, 13, 1549-1552, 1986.
- Wu, R.-S., Multiple scattering and energy transfer of seismic waves—separation of scattering effect from intrinsic attenuation—I. Theoretical modelling, *Geophys. J. R. Astron. Soc.*, 82, 57-80, 1985.
- Wu, R.-S., and K. Aki, Elastic wave scattering by a random medium and the small-scale inhomogeneities in the lithosphere, *J. Geophys. Res.*, 90, 10261-10273, 1985.
- Wu, R., and K. Aki, Scattering characteristics of elastic waves by an elastic heterogeneity, *Geophysics*, 50, 582-595, 1985.
- Wu, R.-S., and A. Ben-Menahem, The elastodynamic near field, *Geophys. J. R. Astron. Soc.*, 81, 609-621, 1985.
- Wu, Z., Shallow structure of the southern Albuquerque basin (Rio Grande rift), New Mexico, from COCORP seismic reflection data, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 293-304, AGU Geodynamic Series, Washington, DC, 1986.
- Wylie, E. B., and C.-T. Wu, Base excitation in one-dimensional soil dynamics, *Soil Dynamics and Earthquake Engin.*, 4, 24-30, 1985.
- Wyss, M., Precursors to large earthquakes, *Earthq. Pred. Res.*, 3, 519-543, 1985.
- Wyss, M., Regular intervals between Hawaiian earthquakes: implications for predicting the next event, *Science*, 234, 726-728, 1986.
- Wyss, M., Seismic quiescence precursor to the 1983 Kaoiki ($M_s = 6.6$), Hawaii, earthquake, *Bull. Seismol. Soc. Am.*, 76, 785-800, 1986.
- Wyss, M., and R. Kind, Crustal transit time monitoring using PKP, *Pageoph.*, 121, 269-285, 1983.
- Wyss, M., R. E. Habermann, and Ch. Heiniger, Seismic quiescence, stress drops, and asperities in the New Hebrides arc, *Bull. Seismol. Soc. Am.*, 73, 219-236, 1983.
- Wyss, M., R. E. Habermann, and J.-C. Griesser, Seismic quiescence and asperities in the Tonga-Kermada arc, *J. Geophys. Res.*, 89, 9293-9304, 1984.
- Yamamoto, T., Propagator matrix for continuously layered porous sea beds, *Bull. Seismol. Soc. Am.*, 73, 1599-1620, 1983.
- Yamamoto, T., and M. Badiey, Propagator matrix for acoustic wave propagation through anisotropic porous media, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 463-472, Plenum Press, NY, 1986.
- Yamamoto, T., and T. Torii, A bottom shear modulus profiler: inverse analysis of the field data on wave-induced bottom motion, in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson, pp. 537-545, Plenum Press, NY, 1986.
- Yantis, B. R., J. K. Costain, and H. D. Ackermann, A reflection seismic study near Charleston, South Carolina, in *Studies Related to the Charleston, South Carolina*

- Earthquake of 1886—Tectonics and Seismicity*, edited by G. S. Gohn, pp. G1-G20, *U.S. Geol. Surv. Prof. Pap.* 1313, 1983.
- Yeats, R. S., Large-scale Quaternary detachments in Ventura basin, southern California, *J. Geophys. Res.*, 88, 569-583, 1983.
- Yeats, R. S., Active faults related to folding, in *Active Tectonics*, pp. 63-79, National Academy Press, Washington, DC, 1986.
- Yeats, R. S., and D. J. Olson, Alternate fault model for the Santa Barbara, California, earthquake of 13 August 1978, *Bull. Seismol. Soc. Am.*, 74, 1545-1554, 1984.
- Yeats, R. S., S. H. Khan, and M. Akhtar, Late Quaternary deformation of the Salt range of Pakistan, *Geol. Soc. Am. Bull.*, 95, 446-457, 1984.
- Yerkes, R. F., and K. M. Williams, Shallow stress changes due to withdrawal of liquid from oil fields in the Coalinga area, California, in *The 1983 Coalinga, California Earthquakes, Special Publication 66*, edited by J. H. Bennett and R. W. Sherburne, pp. 195-199, Calif. Dept. Conservation, Div. Mines and Geology, 1983.
- Yerkes, R. F., W. L. Ellsworth, and J. C. Tinsley, Triggered reverse fault and earthquake due to crustal unloading, northwest Transverse ranges, California, *Geology*, 11, 287-291, 1983.
- Yielding, G., Control of rupture by fault geometry during the 1980 El Asnam (Algeria) earthquake, *Geophys. J. R. Astron. Soc.*, 81, 641-670, 1985.
- Yomogida, K., Gaussian beams for surface waves in laterally slowly varying media, *Geophys. J. R. Astron. Soc.*, 82, 511-533, 1985.
- Yomogida, K., and K. Aki, Waveform synthesis of surface waves in a laterally heterogeneous earth by the Gaussian beam method, *J. Geophys. Res.*, 90, 7665-7688, 1985.
- Yomogida, K., and K. Aki, Amplitude and phase data inversions for phase velocity anomalies in the Pacific ocean basin, *Geophys. J. R. Astron. Soc.*, in press, 1986.
- Yorath, C. J., A. G. Green, R. M. Clowes, A. S. Brown, E. R. Kanasewich, R. D. Hyndman, and C. Spencer, Lithoprobe, southern Vancouver Island: seismic reflection sees through Wrangellia to the Juan de Fuca plate, *Geology*, 13, 759-762, 1985.
- York, H. F., Bilateral negotiations and the arms race, *Sci. Am.*, 249, 149-160, 1983.
- Young, C. J., and T. Lay, Evidence for a shear velocity discontinuity in the lowermost mantle beneath India and the Indian ocean, *Eos (Trans. Amer. Geophys. Un.)*, 67, 311-312, 1986.
- Young, C. J., and T. Lay, The core-mantle boundary, *Annual Rev. Earth Planet. Sci.*, in press, 1986.
- Young, R. A., J. Wright, and G. F. West, Seismic crustal structure of northwest of Thunder bay, Ontario, in *Reflection Seismology: The Continental Crust*, vol. 14, edited by M. Barazangi and L. Brown, pp. 143-155, AGU Geodynamics Series, Washington, DC, 1986.
- Youngs, R. R., and K. J. Coppersmith, Implications of fault slip rates and earthquake recurrence models to probabilistic seismic hazard estimates, *Bull. Seismol. Soc. Am.*, 75, 939-964, 1985.
- Yuan, A. E., S. R. McNutt, and D. H. Harlow, Seismicity and eruptive activity at Fuego volcano, Guatemala: February 1975-January 1977, *Jour. Vol. Geotherm. Res.*, 21, 277-296, 1984.
- Zandt, G., and G. E. Randall, Observations of shear-coupled P waves, *Geophys. Res. Lett.*, 12, 565-568, 1985.
- Zellmer, J. T., G. R. Roquemore, and B. A. Blackerby, Modern tectonic cracking near the Garlock fault, California, *Geol. Soc. Am. Bull.*, 95, 1037-1042, 1985.
- Zervas, C. E., and R. S. Crosson, Pn observation and interpretation in Washington, *Bull. Seismol. Soc. Am.*, 76, 521-546, 1986.
- Zhang, B., Y. Liao, S. Guo, R. E. Wallace, R. C. Bucknam, and T. C. Hanks, Fault scarps related to the 1739 earthquake and seismicity of the Yinchuan graben, Ningxia Huizu Zizhigu, China, *Bull. Seismol. Soc. Am.*, 76, 1253-1287, 1986.
- Zhang, J., and T. Lay, Investigation of a lower mantle shear wave triplication using a broadband array, *Geophys. Res. Lett.*, 11, 620-623, 1984.
- Zhou, H. W., and R. W. Clayton, Mantle velocities from PP waves, *Eos (Trans. Amer. Geophys. Un.)*, 66, 975, 1985.
- Zhou, H., C. R. Allen, and H. Kanamori, Rupture complexity of the 1970 Tonghai and 1973 Luhuo earthquakes, China, from P-wave inversion, and relationship to surface faulting, *Bull. Seismol. Soc. Am.*, 73, 1585-1597, 1983.
- Zhou, H., H. L. Liu, and H. Kanamori, Source processes of large earthquakes along the Xianshuihe fault in southwestern China, *Bull. Seismol. Soc. Am.*, 73, 537-552, 1983.
- Ziony, J. I., Evaluating earthquake hazards in the Los Angeles region—an earth-science perspective, *U.S. Geol. Surv. Prof. Paper*

- 1360, edited by J. I. Ziony, 505 pp., U.S. Gov't Printing Office, Washington, DC, 1985.
- Ziony, J. I., J. F. Evernden, T. E. Fumal, E. L. Harp, S. H. Hartzell, W. B. Joyner, D. K. Keefer, P. A. Spudich, J. C. Tinsley, R. F. Yerkes, and T. L. Youd, Predicted geologic and seismologic effects of a postulated magnitude 6.5 earthquake along the northern part of the Newport-Inglewood zone, in *Evaluating Earthquake Hazards in the Los Angeles Region—An Earth-Science Perspective*, edited by J. I. Ziony, pp. 415–442, U.S. Geol. Surv. Prof. Pap. 1360, 1985.
- Zoback, M. D., and C. M. Wentworth, Crustal studies in central California using an 800-channel seismic reflection recording system, in *Reflection Seismology: A Global Perspective*, vol. 13, edited by M. Barazangi and L. Brown, pp. 183–196, AGU Geodynamics Series, Washington, DC, 1986.
- Zoback, M. L., Structure and Cenozoic tectonism along the Wasatch fault zone, Utah, in *Tectonic and Stratigraphic Studies in the Eastern Great Basin*, Geol. Soc. Am. Memoir 157, edited by D. M. Miller et al., pp. 3–27, Geol. Soc. Am., 1983.
- Zoback, M. L., S. P. Nishenko, R. M. Richardson, H. S. Hasegawa, and M. D. Zoback, Mid-plate stress, deformation, and seismicity, in *The Geology of North America*, Geol. Soc. Am. Memoir 157, Vol. M, *The Western North Atlantic Region*, pp. 297–312, Geol. Soc. Am., 1986.
- Zollweg, J. E., and R. S. Jacobson, A seismic zone on the Oregon–Idaho border: the Powder River earthquakes of 1984, Bull. Seismol. Soc. Am., 76, 985–1000, 1986.
- Zollweg, J. E., and W. D. Richins, Later aftershocks of the 1983 Borah Peak, Idaho, earthquake and related activity in central Idaho, in *Proc. of Workshop XXVIII. On the Borah Peak, Idaho, Earthquake*, vol. A, edited by R. S. Stein and R. C. Bucknam, pp. 345–367, U.S. Geol. Surv. Open-File Rep. 85–290, 1985.
- Zorpette, G., Monitoring the tests, IEEE Spectrum, pp. 57–66, July 1986.
- Zucca, J. J., G. S. Fuis, B. Milkereit, W. D. Mooney, and R. Catchings, Crustal structure of northern California from seismic-refraction data, J. Geophys. Res., 91, 7359–7382, 1986.